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THE

VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

EDITED BY

GEORGE FLEMING, F.R.G.S.,

Veterinary Surgeon, 2nd Life Guards.

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JANUARY, 1878.

ŒSOPHAGOTOMY IN THE DOG.

BY A. E. MACGILLIVRAY, V.S., BANFF, N.B.

ABOUT six weeks ago I was asked to look at a dog belonging to a gentleman in this town, which was said to have a bone stuck in its throat. On attending and examining the dog I found no bone in the throat; there was evidently, however, an obstruction in the œsophagus, about midway between the throat and sternum. I used every means I could think of to remove (up or down) this obstruction—external manipulation, various sorts of probangs, and several forceps—but without avail.

The owner, being intimately acquainted with Drs. Manson and Hirschfeld of this town, consulted with them, and they kindly consented to see the dog. After these gentlemen had examined it, and had tried a great many different kinds of probangs and forceps, it was concluded that relief could only be given by performing œsophagotomy.

Accordingly, the animal being properly and conveniently secured on a table, was put under chloroform, and Dr. J. C. Hirschfeld operated. After making a pretty large cuticular incision, and cutting cautiously through the subjacent dermal

muscle, the doctor dissected down between the sterno-maxillary and mastoido-humeral muscles of the left side, and thus on to the obstructed œsophagus behind the trachea: and here it may be remarked that this was the more easily accomplished, owing to the absence in the dog of the omo- or subscapulo-hyoidean muscle, which passes (partly crosswise) along the outside of the trachea. Having arrived at and laid bare the obstructed part of the gullet, a pretty free incision was made in the same, and with much difficulty the doctor extracted two of the coccygeal vertebræ of an ox! One of these vertebræ measured about two inches across the transverse processes, and nearly an inch and a half vertically; the other was a little less in size.

Dr. Hirschfeld closed up the wound in the œsophagus with continuous sutures of prepared catgut, and the external wound with interrupted sutures of horsehair. The stitching of the gullet was an extremely difficult job, but was very successfully done.

The dog was restricted to entirely fluid sustenance for several days, and the wound kept clean and dressed outside and inside with a weak solution of carbolic acid.

A most satisfactory and complete recovery soon ensued, the animal being apparently not a whit the worse for the very serious operation.

Remarks.—What struck me most forcibly during the operation was, that without the chloroform it could not under any circumstances have been accomplished; the great amount of cool and cautious dissecting which took place would have produced so much wriggling and twitching as to render such a successful *finale* impossible. Professor Williams in his "Veterinary Surgery" mentions this, and recommends cutting down immediately on the obstruction with one bold "longitudinal incision," thus getting rid of all nervous twitchings by coming to the *casus belli* at once!

By adopting the bold incisive style we, however, have little chance of being able to stitch up the wound in the gullet, as the latter has not been dissected down upon and laid bare *per se* before being cut into; and, *after being cut into along with the superincumbent and attached parts*, I should consider it next to

impossible to dissect and separate away by themselves the lips of the wound in the œsophageal parietes—so as to allow them to be distinctly and satisfactorily stitched together.

I believe œsophagotomy has been successfully performed in the horse, ox, dog, and pig. In man the operation has been performed eleven times, and only twice did death supervene, —so that nine human lives have been snatched from death by œsophagotomy.

In the recently published work on "Veterinary Surgery" by MM. Peuch and Toussaint, a very interesting chapter on this subject will be found; these authors recommend the cautious and "bit by bit" manner of operating—precisely as done by Dr. Hirschfeld in the above case.

Peuch and Toussaint say they have operated twice on dogs—losing one case and saving one.

During the last thirteen years I have met with several cases of dilatation of the gullet (in young horses), immediately in front of the sternum; and in three of these cases, as a *dernier ressort*, I cut into the œsophagus: one case did well, but the other two succumbed. In one case the distension was so great, that when I cut open the œsophagus, I extracted more than a bucketful of ingesta from the dilatation *per* the wound!

In the latter instance, the œsophageal parietes were very much attenuated, and very white and blanched looking.

During the past summer I met with a case of congenital œsophageal dilatation in a foal; here the distension of the gullet extended more than half way up the neck *from the sternum;* and, from the symptoms presented, I am almost certain this abnormal state of matters was continued from the sternum to the cardiac orifice of the stomach. I tried bandaging, pads, and everything I could think of, with little, if any, benefit; the patient is, however, still alive.

URETHRAL CALCULI.

BY J. T. DUNCAN, V.S., CANADA.

SOME time ago, a farmer from a distance requested me to see a horse of his, which had passed very little urine for more than

thirty-six hours, notwithstanding the administration of liberal doses of saltpetre and sweet nitre. On my arrival I found the patient exceedingly uneasy, abdomen evidently distended, the urethra prominent and full along its visible course, and an occasional drop of urine escaping from it. It was plainly a case of urethral obstruction; and I prepared at once to pass the catheter, as, from the condition of the patient, rupture of the bladder might occur at any moment. On attempting to do so, however, I found, firmly fixed in the urethral tube, and almost completely blocking it, a large, hard, smooth calculus. As it was low down, I attempted to extract it by means of the forceps, but, from its great volume and hardness, it could neither be taken out whole nor reduced in size. The knife was then the only alternative; and as no time was to be lost, I determined to operate with the patient standing. By two careful incisions in the urethral tube, the calculus was removed, and with it escaped the urine in the urethra. Immediate relief was apparent; but the bladder having become paralysed from over-distention, it was necessary to evacuate that viscus by means of the catheter. The horse made an excellent recovery.

With regard to the calculus itself (a very large and fine specimen), the patient unfortunately stepped on and injured it. The remainder, however, which shows clearly the great size of the concretion originally, has been presented to the museum of the Ontario Veterinary College.

This case forms an excellent commentary on the use, or rather the abuse, of diuretics by non-professional gentlemen. It also shows the importance of operating in some cases with the patient standing: had this animal been cast, the bladder would almost inevitably have been ruptured.

This is only the second case of urethral calculus occurring in a practice of seven years; the other being that of a ram. In the latter case, the calculus was exceedingly small; it was discovered in the vermiform appendix, and removed. Unfortunately, rupture of the bladder had already taken place. This specimen I also presented to the Ontario College.

EXTRACTS FROM A VETERINARY SURGEON'S CASE BOOK.

BY D. MENZIES, M.R.C.V.S., ST. AUSTELL, CORNWALL.

Peculiar Case of Tetanus.

HAVING attended some cases recently that may interest some of the readers of the *Veterinary Journal*, I send them for insertion.

Circumstances prevented me, or the first case would have appeared earlier, as evidence in favour of the correctness of Mr. Litt's view of the case he reported in the *Journal* for April last, under the title of Emprosthotonos. My patient was a seven-year-old horse, used for riding and driving, and about three-parts bred. He was in perfect health on the sixth day of April last, when he was turned out in a field much exposed to easterly winds, which prevailed at the time. When brought home in the evening, the groom noticed him to be very stiff; and next day, when I saw him, he certainly exhibited a most remarkable appearance. His flanks and belly were so much drawn up that there seemed to be a swelling extending from the last rib to the ensiform cartilage, not unlike a case of Acute Pleurisy, which I at first thought it was; but a very cursory examination showed it could not be that disease. Like Mr. Litt's case, his pulse and respiration were normal, and his appetite moderately good.

The inferior muscles of the neck and chest were in a state of tension, and very hard, as were also the abdominal muscles,—the latter resisting my utmost efforts, with my closed hand pressing against them, to make any impression; in fact, as the groom said, I might as well press against a board,—and yet under all this the horse seemed to suffer no acute pain.

His naturally finely-arched neck was drawn down to a straight line with his back, which was rounded, and the superior spinous processes seemed much more prominent than natural: so much so as to attract the attention of the owner, who mentioned this peculiarity in his letter when I was called to attend the case. On moving him out of the stable, he appeared like a horse

suffering from Tetanus; but the spasm of the jaws was absent, nor did his eye and tail exhibit the peculiar appearance usual in that disease. During progression he would poke out his nose and make efforts to elevate his head; but the spasmodic condition of the *levator humeri* prevented his doing so. Like Mr. Litt, I was much puzzled by the symptoms, as I had never seen a case like it, and was at first inclined to think it was Muscular Rheumatism; but the convulsive twitching when the animal was suddenly disturbed, with the other symptoms of Tetanus present, convinced me it must be a form of that disease.

The treatment adopted consisted in enveloping the animal in flannel, which was saturated with hot water every hour during the day; the horse was rubbed dry at night, and a weak liniment applied, after which he was clothed with dry blankets. This hot water treatment was continued daily for a week. The medicines given were ʒii ext. belladonna rubbed down in ℥i chloric æther, morning and night, a powder at noon of pot. nit. and pot. bicarb., with half a pint of linseed oil daily till the bowels were slightly relaxed. This treatment was continued, with evidently good results, for a week, when the hot water applications were left off. He was now able to move and turn in his box with greater freedom, though still much tucked-up in the flanks. The belladonna was then given in smaller doses, and spts. æther nit. instead of the chloric æther, and very gentle walking exercise ordered to be allowed when the weather was fine.

A tonic powder composed of ferri sulph., zingib., gent., and nux vomica, was also given daily instead of alkalies. He continued to improve gradually, and about the middle of May was well enough to resume his duties, apparently not much the worse for the attack.

There were two peculiarities in Mr. Litt's case which were absent in mine—viz., the continual desire to micturate, and the paroxysms; but I think that, notwithstanding these differences, the same pathological condition existed in both cases. I have seen and treated many cases of Azoturia, but I could recognise no similarity between them and the case referred to. The cause, the duration and the symptoms, in both Mr. Litt's case and

mine, prove that the disease was not Azoturia, but a form of Tetanus, which, though rare, was rightly placed by Mr. Litt under the title of Emprosthotonos.

Two Cases of Heart Disease due to Foreign Bodies.

The next case I have to record is that of a half-bred Jersey cow, in milk. She had been noticed slightly amiss for about a week before I was called to see her; and on making inquiries the following particulars were given: secretion of milk diminished by one-half; accelerated respiration—which I noticed was also abdominal; groaning occasionally, especially when moved; but she was said to eat her food as freely as in health, and certainly looked cheerful.

On auscultating the chest, a slight friction sound was quite evident, and this led me to believe the case to be a mild attack of Pleurisy; but as the pulse and temperature were almost normal, I did not anticipate much danger. A draught was given, and a little mustard rubbed into the right side of the chest,—when she was left for the night. On the following morning she appeared much the same, and three doses of nitrate of potash and spts. æth. nit. were left, to be given during the day. Next day, when I saw her, there was no difficulty in diagnosing Pericarditis. Her pulse was strong, with a sharp, angry beat, and numbered 80 per minute; the respiration was more abdominal, and she moaned at every movement. The palpitation of the heart obscured all other sounds within the chest; her countenance had an anxious expression, and the head was rather protruded and depressed. I told the owner that her recovery was hopeless, as she had all the symptoms of a foreign body in the pericardium; and, as further treatment seemed useless, I asked him to let me know when she died.

Next morning I received a message stating that the cow had eaten a bucketful of turnips and drunk a pailful of water the previous night, but was found dead in her stall in the morning; that the operation of removing her skin was nearly completed, and if I wished to open her I must make haste. I rode over at once, and on opening her found the following lesions: areolar tissue beneath the chest, and inside the off fore-leg

œdematous; diaphragm much inflamed, and adherent to the reticulum. On opening that compartment of the stomach, a small inflammatory patch was discovered, and in its centre a fistulous opening, which was continuous with a canal that led to the heart; in the left ventricle of this organ was a piece of wire about four inches long. One end of this wire protruded about half an inch outside the pericardium, the other end having penetrated quite through the ventricular wall. The wire was corroded and black, and, from the appearance of the canal, must have occupied several weeks in its passage from the stomach to the heart.

I can scarcely think the wire had reached the pericardium when I first saw her; though, undoubtedly, on my last visit not only the pericardium, but also the heart itself, must have been punctured, as the opening in the ventricular wall was much larger than the wire, and discoloured to the extent of a halfpenny around it.

About a week after attending the previous case, I was called to see another cow that had been gradually losing flesh for some weeks. She was now come to within a fortnight of her time to calve, and the owner thought her illness was due to the calf being dead. She appeared feverish, with an anxious countenance, and a great disposition to keep her head near the ground; and, latterly, to rest her chin on the box which contained her food. Her pulse was about 60, indistinct and intermittent; and there was pleuritic friction over the whole of the right side of the chest. Her appetite was capricious; some days she would eat nothing, but seldom refused to drink gruel, which she had *ad lib.* I attended her for ten days; but, as she was gradually getting worse, I at last persuaded the owner to end her sufferings, as the symptoms of a foreign body in the pericardium were so evident as to be beyond doubt, while recovery was hopeless. At this stage the symptoms were: a loud gurgling or churning sound in the chest; pulse indistinct and intermittent; œdema of the submaxillary space, this condition being continued down the lower part of the neck, and ending in a large swelling between the fore-legs.

Her respiration was laboured and entirely abdominal, like a

badly "broken-winded" horse, and the nose was always poked out, whether she was lying or standing, with the chin resting on the ground or side of her manger. There was also regurgitation of blood in the jugulars, extending half-way up the neck; and her appetite was quite gone, though she still drank gruel. There were no eructations in either this or the preceding case, as in some instances which have been recorded.

Post-mortem.—The right side of the chest contained a large quantity of fœtid pus, and most of the organs within that cavity were connected by false membranes. The pericardium was about half an inch in thickness, and the heart itself of a dirty-brown colour. In the pericardial sac was half of a ladies' hair-pin, as bright as a shilling—the brightness being doubtless due to friction in the movements of the heart. On looking at the amount of disease within the chest, it was difficult to conceive how the animal could have survived so long.

Chloroform as an Antidote in Strychnine Poisoning.

On the 3rd of November last I was called in great haste to see a dog which was said to be in a fit.

On reaching the place, a few minutes afterwards, I found a black-and-tan terrier suffering from the effects of strychnine. He was standing with the head drawn back, eyes protruding, and all the muscles in a rigid condition. In about a minute a paroxysm came on, and he rushed forward, to the no little alarm of the on-lookers; but only got a few yards, when he fell in tetanic convulsions. Luckily, I had brought some chloroform with me, and poured about a dram on my handkerchief, and held it over his nostrils. In about half a minute his breathing became easier, the spasms relaxed, and he got on his legs, looking considerably relieved. In a few minutes the rigid condition gradually returned, and another paroxysm seemed imminent; but a timely use of the chloroform arrested it before convulsions came on. I waited three hours, during which I had to apply the chloroform five or six times, and always with the same result.

He had no more spasms after I left, and next day seemed quite well, though looking rather dull and stupid.

RUPTURE OF THE DIAPHRAGM: TEMPORARY RECOVERY.

BY W. WOODS, F.R.C.V.S., WIGAN, LANCASHIRE.

IN the spring of 1874 I was requested by the Ince Hall Coal and Canal Company to visit a carthorse which, it was reported, had been jammed between two coal-waggons, the buffers striking the posterior ribs: as the driver of the horse expressed it, "the buffers nearly met." On being released, the unfortunate animal immediately fell, and for some time was unable to rise. When I arrived, however, he had managed to get up, and walked from three to four hundred yards to the stable. On examination of the body I discovered fracture of the two last ribs; the pulse was 90, and weak; the breathing heavy, and countenance anxious, and the horse very unwilling to move. The diagnosis was internal hæmorrhage. I ordered hot wet cloths to be kept constantly applied to the abdomen, and administered—

Opii Tinct.	℥ij.
Ol. Lini.	Oj.

On the following morning the symptoms were much the same. The horse often attempted to lie down, but when he got on his knees he immediately rose again, as if the effort produced suffering, and for a short time afterwards the breathing was considerably hurried. There was, however, no attempt to vomit, and the horse took a little mash, though no fæces were passed. The oleaginous purgative was repeated, and to it was added two drachms of aloes in solution. The hot water fomentations were continued.

On the third day the bowels began to respond; the countenance was less dejected, and the horse was evidently in less pain; though now he remained constantly in one position, and made no attempt whatever to lie down.

From this date he continued to improve, though five weeks elapsed before he was put to work: for a week or two to carting, and then to his ordinary occupation of waggoning.

He continued at this work for fourteen months, apparently perfectly restored; when I was again hurriedly requested to see

him. He was dead, however, before my arrival, which was some time after I had been sent for.

On examination of the body, I found an extensive rupture of the diaphragm, passing through which, and lying in the thoracic cavity, were found the whole of the stomach and some of the small intestines. The borders of the ruptured portion of the diaphragm were perfectly healed, and had a thickened edge like a selvage. This appearance led me to conclude that the stomach had been forced into the thoracic cavity on the receipt of the injury by the coal-waggons.

Should these crude observations be deemed worthy of insertion in your valuable journal, I shall be most happy to place them at your disposal.

SINGULAR CASE OF DELIRIUM IN A HORSE.

BY J. W. HILL, M.R.C.V.S., WOLVERHAMPTON.

On the 7th December, a three-year-old grey mare pony was brought to the infirmary, suffering from Colic. She left the following day apparently well. On the 12th she was again brought to us for advice. The owner had that morning driven her a considerable distance, and when near home she exhibited signs of distress, and could only proceed at a walking pace. Immediately on her arrival at the infirmary she lay down; and when I saw her, shortly after, she was in a cold sweat, her nose propped on the ground, fore limbs extended and flexed as if in the act of rising, the hind ones gathered under her. The pulse was weak, rapid, and fluttering; the breathing short and difficult; and the extremities deathly cold. Auscultation revealed congestion of both lungs. An ordinary diffusible stimulant had been administered when she first came in. I now ordered 4 oz. of brandy with $\frac{1}{2}$ oz. of tinct. ferri, to be given in a little tepid water, and mustard to be applied to the sides, and friction to the ears and extremities. An hour later I found the breathing less laboured, and the extremities warm, and pulse firmer. Shortly afterwards, hearing a considerable noise in the box,

I hastened to the spot, and discovered the animal lying on her broadside (the left), and, as it were, trotting at an enormous rate. Every limb was pounding away in precisely the same manner as they would do in fast trotting—fore and hind limbs keeping exact time. The head was extended, the nostrils dilated, the ears pricked, and the tail carried out; but the eyes were unnaturally prominent and fixed. So unusual was the spectacle, that a number of persons collected round the spot to witness it. The poor animal, which was drawn into the middle of the box to prevent further damage to itself and its surroundings, appeared utterly unable to control its movements; indeed, the action of the limbs increased, until the rapidity of their motion was simply extraordinary.

This imaginary race, if I may so term it, lasted seventeen minutes—ceasing, with a shrill neigh, almost as suddenly as it commenced, and leaving the patient bathed in perspiration.

For some time afterwards, if touched or excited by noise, the limbs were brought into the same action again immediately; but a gentle word and quietude had now the effect of soothing the patient.

Horses, cattle, and dogs I have frequently seen delirious, but never before in a like manner to this case. In this instance the poor animal was repeating, in imagination, the performance it had that morning and two days previously gone through; for I subsequently learned that she was a noted trotting pony, and had been accustomed to do her seven miles in thirty minutes.

Between three and four hours after the above delirium, she became fully conscious; tepid water was offered, of which she drank greedily; and afterwards, with some little difficulty, she rose to her feet, ate a warm mash, and continued gradually to improve. For three days subsequently a short cough was present, and the breathing was accelerated; but under the treatment pursued the former disappeared, and the latter (now the 16th) is almost normal.

Editorial.

SIR THOMAS WATSON ON HYDROPHOBIA AND RABIES.

QUITE recently, the subject of Rabies and Hydrophobia was largely occupying the public mind, and the alarm the prevalence of the double-designated disease had created was calling forth innumerable articles, observations, and letters from all sorts and conditions of men—and even women. We have already alluded to the loose and oftentimes wild writing which the "mad dog" and Hydrophobia panic produced, and the strange and frequently absurd notions promulgated by persons who should certainly have been better informed. Thanks to the labours of members of the veterinary profession, the subject—in so far as its most important and salient features, and the measures necessary for its prevention and suppression are concerned—was exhausted some time ago, and everything really necessary to be known with regard to it had been elucidated. Notwithstanding this, however, the public press and some medical journals treated it as if it were some appalling, new, or mysterious disease, and doubt, speculation, and perplexity seemed to prevail; when suddenly it was announced that Sir Thomas Watson—an honoured and well-known name in the annals of British medicine—was about to contribute a paper on "Hydrophobia and Rabies" to the December number of the new monthly magazine—the *Nineteenth Century*. The announcement produced a kind of lull in the rabäic storm; and the publication of the article was looked forward to, we believe, with much anxiety, as it was presumed that if it did not throw much new light on the terrifying malady, yet it would certainly settle a great deal, if not everything, hitherto uncertain with regard to it. For ourselves, we confess to the existence of some curiosity and interest as to its appearance; for having made a special study of the disease, we wondered what could possibly be added to that which had already been made known. Having read the contribution, we confess that our curiosity has been disappointed and our interest unrewarded. The article is scarcely worthy of the high reputation of the writer, and is certainly behind the times; inasmuch as the views propounded are old and well-worn, while the results of modern investigation and the opinions and researches of modern investigators are ignored. Blaine and Youatt are the only veterinary authorities Sir Thomas appears to be acquainted with; and the many observers who have devoted themselves to a study of Rabies in animals since the days when these two excellent writers described the disease, are either overlooked or forgotten. Hence the magazine contribution may be said to belong to the days of Blaine and Youatt, rather than to the present time. While it does some service in pointing out popular and dangerous errors, such as the "water-test" for the malady in dogs—a service which had been performed by every previous writer who had any knowledge of the subject—it yet perpetuates some errors which have been exposed for years, and we assuredly think it is not to be commended for either the preventive or suppressive

measures it proposes, while some of the views propounded are, we venture to assert, open to discussion.

Alluding to the malady as one which might be permanently got rid of, he says: "The disease, or rather the pair of diseases, to which I advert, consists of Hydrophobia in the human species, and Rabies. It is well to keep in mind the distinction between these two. There would be no Hydrophobia were there no Rabies; there can be no Rabies unless it be communicated by a rabid animal: but they are not identical diseases. To use the concrete form of speech, Rabies in the dog is quite different and distinct from Hydrophobia in the *man*. The term Hydrophobia is often erroneously applied to both diseases, but the rabid dog is never hydrophobic." That the rabid dog is never hydrophobic (*i.e.* afraid of water) is a fact long known; but that Rabies and Hydrophobia are quite different and distinct diseases, we altogether beg to deny. There is undoubtedly some difference between the symptoms in man and the dog, but the difference is no greater than between the dog and horse, sheep, cow, or pig. The virus of Rabies will produce Hydrophobia, and *vice versâ;* this has been proved by accidental and experimental inoculation. We gave our monograph on the disease ("Rabies and Hydrophobia") the double designation, simply with the view of exposing an error and preventing a mistake, as the term Hydrophobia applied to the malady in the *dog* was dangerously misleading, while in *man*, though not always applicable, it yet was a popular name that could not do much harm. The two designations signify one and the same disease, the symptomatology of which varies somewhat in different species. "Hydrophobia" is not a good designation. As to there being no Rabies unless it be communicated by a rabid animal, this is a question not yet quite decided in the minds of those who have had great experience in the malady, and who have given a lifetime to its study; and there is undoubtedly much strong and striking evidence to be overcome before some excellent authorities can accept the dictum of Sir Thomas. "In the canine race," he adds, "Rabies can propagate Rabies; but Hydrophobia does not (as I believe) ever reproduce itself." This is a mistake, as we have just said; Hydrophobia in man having produced Rabies in animals, and from these doubtless Hydrophobia could have been again developed. If we are to consider Rabies as a zymotic disease, such a result might certainly be expected. Sir Thomas justly insists, as we ourselves have repeatedly done during the present outbreak, on the peculiar symptoms of the disease precluding any one who has ever seen it from mistaking it for any other malady, and that it is not a disease of the imagination: in support of the latter assertion he instances the malady appearing in infants and idiots—and, he might have added, in animals.

In attempting to explain the long incubatory period which is observed in some cases, he reproduces views he promulgated some forty years ago, to the effect that the virus is encysted at the seat of inoculation, and retained there until some cause allows it to enter the blood. This opinion, however, he admits to have been originated by Dr. Thomson, in 1826.

The identity or analogy between Hydrophobia and Tetanus has been frequently brought forward during this outbreak, and we have ventured to combat the notion, as will be seen in the Correspondence pages of the last number of the *Veterinary Journal*. Sir Thomas confirms our opinion that the differences between the two are very clearly marked. "It is true that slight touches of the body will excite the tetanic spasm, but it is the rigid or abiding form of spasm which relaxes gradually and slowly; whereas in Hydrophobia the spasms are sudden and frequent—such as are popularly called convulsions. In Tetanus there is no thirst, seldom any vomiting, no accumulation of tough and stringy mucus in the mouth and throat. The mental faculties are clear, and the patient is serene, and what is called heart-whole to the last." We may remark that in animals the distinction between the two diseases is even more marked than in man; and Sir Thomas might have noted that the one is an inoculable or virulent disease, while the other is not.

With regard to incubation in animals, Sir Thomas writes: "I do not know whether the period of incubation in a dog which has been infected with Rabies by the bite of another rabid dog has been accurately ascertained." If the author had consulted our work on "Rabies and Hydrophobia" (p. 178),* he would have found ample evidence as to the latent period of this disease in the dog, as well as in other animals. It is remarked that, "as a help towards determining whether a dog which may have been destroyed under equivocal circumstances was indeed rabid, it may be useful to state that in the stomach of a really mad dog there are always to be found very unnatural contents—straw, hay, coal, sticks, horsedung, earth, as well as a quantity of a dark fluid like thin treacle, altered blood in fact." Now, though we have insisted on this abnormal condition of the contents of the stomach, in the work just alluded to, yet we have been no less careful in showing that the absence of these matters from the interior of the stomach is sometimes noted in the rabid dog, and that a hasty conclusion from their presence or absence is to be deprecated.

With regard to the protective or preventive measures when a person has been wounded by a rabid animal, Sir Thomas lays stress on the early and complete excision of the bitten part as the only means of prevention in which much confidence can be placed; when this cannot be effected, the wound should be cauterized. He is opposed to the use of the actual cautery, and thinks that the virus and the tissues of the bitten part might be as readily and thoroughly destroyed by means of a glass brush with nitric acid. But excision requires an expert surgeon—and he, and also the nitric acid and glass brush, may be miles off when a person is bitten; but the actual cautery can be found everywhere and at once, and be applied with comparative safety and painlessness by any one. Sir Thomas apparently overlooks, forgets, or ignores the statistics we have collected with regard to the value of the

* That Sir Thomas was in possession of the work is abundantly evident from his article, and also from the reference he makes in one part: "In an elaborate and valuable treatise on 'Rabies and Hydrophobia,' Mr. George Fleming adduces conflicting evidence," etc.

actual cautery. Excision has frequently to be long delayed; and, besides requiring great skill and accuracy, and being frequently impracticable or tedious, causing the loss of valuable time, it is not always reliable. Suction Sir Thomas does not counsel; whereas we have laid the greatest stress upon its immediate adoption, as the most likely means of removing some, if not all, of the poison before it has had time to be absorbed or get beyond reach. "When I call to mind what Mr. Youatt has said of the danger attending the contact of the poisonous saliva with even sound mucous membranes, and, further, the risk that the sucker's lips might, whether he knew it or not, be chapped or abraded, I dare not counsel the expedient of suction. By adopting it the sufferer might be rushing, or bringing his helping neighbour, into the very peril he was anxious to avert." Suction for the removal of poisons from wounds has been practised from time immemorial, and yet there is no evidence whatever to prove that it has been a fatal practice. On the contrary, not only has the operator in every recorded instance escaped danger, but the operation itself appears to have, in many cases, preserved the life of the wounded individual. The poison is not retained in the mouth of him who sucks, but is immediately and forcibly expelled, along with cleansing saliva; so that, if there be any danger at all, the chances must be exceedingly few. And if there happened to be any trifling or even great risk, we hope no one would thereby be deterred from at once seizing the opportunity of preserving a fellow-creature from the contingency of a terrible death. Almost daily there are volunteers who nobly and generously risk far greater dangers than this to save human life. It must ever be remembered that time is a most important element in preservative measures, and that waiting for caustics, cupping glasses, and the surgeon's scalpel, may be synonymous with waiting for an agonizing death. We ourselves would not hesitate for a second in applying our lips to and sucking the wound inflicted upon a fellow-creature by a rabid or suspected animal, and we should hold any one in the lowest estimation who declined to do so on the plea advanced by Sir Thomas Watson.

The remaining preventive measures recommended in his paper have already been counselled by other authorities.

With regard to extinguishing Rabies altogether, Sir Thomas only gives Youatt's notion of a well-enforced quarantine of every dog in the kingdom for a period of seven months, and Bardsley's suggestion that the importation of those animals should cease during the existence of this quarantine, destroying every dog in which the disease should appear during this time; and he adds that "it is much to be wondered at that these wise suggestions should remain so long neglected by our sanitary authorities." It is almost needless to note that such a quarantine could not be rigidly enforced for so long a time, and if not so enforced it would probably be useless; besides, even if successful thus far, and admitting that the disease owes its maintenance solely to its contagious properties, we should afterwards always be liable to its conveyance from other countries where it prevails, unless we entirely prohibited the importation of dogs. And are we at all certain that the latent

interval between inoculation and the development of the symptoms, is never more than seven months in the dog? Sir Thomas himself alludes to the latent period in man extending to five years, and even seven years: why may it not be as long in the dog?

With regard to the treatment of Hydrophobia, it is indeed astonishing to find this high medical authority throwing up his hands in despair, and exclaiming that there is nothing for the unfortunate victim but the "euthanasia"—which, we are told, is best promoted by some narcotic drug, such as chloral hydrate—to mitigate the sufferings to their close. Surely such is not the doctrine or the genius of medical science towards the end of the nineteenth century! Modern medicine does not, dare not, despair of a cure for, or a method of curing, the disease; and we may rest assured that, with our ever-increasing knowledge of therapeutics, and of physiology and pathology, attempts will be made to save the life of the hydrophobic patient. In days gone by, the unhappy person received the euthanasia between two mattresses, with several individuals seated on the top in order to produce suffocation more quickly. Sir Thomas is not much more advanced in his treatment.

Sir Thomas is in error in his statement that "Hydrophobia owes its parentage exclusively to the poison furnished in the first instance by the rabid dog, or by rabid animals of the same species." We know, from abundant evidence of the most distinct, authentic, and painful kind, that Hydrophobia has been produced by the bite of the skunk, racoon, hyæna, jackal, wolf, and fox, as well as the cat. This evidence is to be found in "Rabies and Hydrophobia."

Sir Thomas is no more correct in some of his statements with regard to the geographical distribution of Hydrophobia. For instance, he repeats the assertion, so frequently made, that Rabies is unknown at Constantinople, and quotes the evidence of a military officer who was a few months there. This is an entirely fallacious statement, as we have often had to point out, and as we have specially mentioned in our book so frequently alluded to. Medical men living in Constantinople have witnessed cases of Hydrophobia there—though rarely—and due to bites from dogs and bites or scratches from cats. Ahmed Effendi, professor of veterinary medicine in the Military Academy at Constantinople, at the International Veterinary Congress held at Vienna in 1865, testified to this fact, and adds, "In Turkey the disease exists, and appears, though very seldom, not only in dogs in villages and in the country, but likewise in those in large towns." Rabies and Hydrophobia are witnessed in both European and Asiatic Turkey—where, and in Persia, they are known as "Sag diwinah." The pariah dog of Constantinople is found all over the East. Sir Thomas quotes the evidence of Mr. Kroll to the effect that "he never heard of a single case of Hydrophobia in Africa during travels there extending over two years." We do not know what part of the African continent is alluded to; but the disease certainly exists, and sometimes prevails very extensively, in North Africa. The proof of this is given at some length in our monograph.

Sir Thomas puts us in his debt by furnishing us with two additional

and recent facts, which still further corroborate what we have stated elsewhere, and will be acceptable to veterinarians. Mr. Wrench, of Baslow, in Derbyshire, writes: "A small terrier belonging to myself was bitten by an undoubtedly rabid dog, and was consequently destroyed about a fortnight afterwards, and before it had shown any symptoms of disease. In the meantime it had licked the cropped ears of a bull-puppy which had not been near the first-named rabid dog; and this puppy went mad about eight weeks after his ears were licked."

The other observation goes to prove that the disease may be transmitted from the mother to her offspring, through the medium of her milk.

"In the middle of May, 1876, on Mr. Twigg's farm, Harewood Grange, near Chatsworth, a mad dog bit eighteen sheep out of a flock of twenty-one, which were at the time suckling thirty lambs. The sheep were all bitten about the *face*, and had evidently been defending their lambs during the greater part of the night in which the attack was made. Mr. Twigg examined both sheep and lambs, and could not find a single wound on any of the latter. In about a month both sheep and *lambs* began to die, at the rate of two or three a day. The sheep ran wildly about, sometimes carrying stones in their mouths, and the lambs ran away. Of the eighteen sheep that had been bitten, sixteen died; and of the thirty lambs, not one of which was believed to have been bitten, fourteen died. On the next farm the same thing happened to a smaller extent."

We do not think there is anything further to note in Sir Thomas Watson's paper. It is far from being so useful as it might have been, had the existing knowledge and facts with regard to Rabies and Hydrophobia been made available. On such a subject the public requires correct and complete information, and errors should be avoided as far as possible. In no other disease with which we are acquainted have erroneous notions and superstitious and defective information been more apparent, or produced such serious results. It is therefore the duty of every writer to avail himself of all possible sources of information with regard to it, and endeavour to rescue it from the thralls of ignorance and superstition. Sir Thomas had a good opportunity, and it is to be regretted he did not make more of it.

TRICHINOSIS IN AMERICA.

TRICHINOSIS is either becoming more prevalent in the United States of America, or it is more closely investigated and readily recognised. An outbreak occurred in Indiana in 1874, but only nine people were affected, and three of these perished. One pig was the origin of the outbreak: its flesh, which had been converted into smoked sausages, and was full of *trichinæ*, had been eaten in an uncooked state.

The Western States, which are the chief pig-rearing regions, are much infested by Trichinosis; and an examination of the flesh of pigs in south-eastern Indiana proved that from three to sixteen per cent. are affected. It

is calculated that, in the Western States, five million pigs are killed every winter for the consumption of a large portion of the United States; and if only four per cent. of these are trichinosed, the total number disposed of for food would be upwards of 200,000.

In the outbreak in Indiana, muscular pains were not such marked symptoms as those of Gastro-enteritis. In one case the muscular pains were so acute that movement caused great agony, and there was general Œdema. After death the trichinæ were found to be so numerous in the muscles, that a cubic inch was calculated to contain 100,000. In the other fatal cases, the pathological alterations were those of Gastro-enteritis; only a few trichinæ were found in the muscles, and in the walls of the intestines.

Four cats were fed on trichinosed flesh, and the muscles of three of these were discovered to be swarming with the entozoön. Eight moles and forty-two rats were examined for trichinæ, but none could be found. Hog Cholera and Trichinosis were proved to be distinct affections.

GLANDERS AND FARCY IN PRUSSIA.

THE "Technischen Deputation für das Veterinair Wesen" has issued its report on the contagious diseases prevalent in Prussia during 1876, and the number of cases of Glanders and Farcy for the three last quarters of that year is given. The following is the table showing the result of the inquiries:—

	2nd Quarter.	3rd Quarter.	4th Quarter.
Number of infected districts	119	202	180
,, ,, villages	406	451	338
,, ,, farms or stables	457	552	416
,, horses in infected places	4235	4918	3505
,, diseased ,, ,, ,, ...	949	878	592
,, ,, died	47	45	21
,, ,, killed by order	736	691	436
,, ,, killed by owners	89	76	79

It will be observed that the total number of diseased horses is 2419; of these there died 113, 1863 were destroyed by official authority, and 244 were voluntarily killed by their owners,—the entire number disposed of being 2220.

Virchow (*Archiv*, vol. lxvii.), remarking on these figures, says they offer a striking proof of the value of the new laws with regard to the contagious maladies of animals, and afford a comforting assurance as to the suppression of one cause of danger to mankind. He points out that there is a decrease in the number of cases reported and killed in each quarter, and that this decrease must be due to the manner in which the veterinary police measures are carried out. As to the contagium of Glanders, Virchow clings to the opinion that it is of a "fixed" nature. He admits that the opinion as to its being "volatile" is very prevalent, and that there are many facts in support of this opinion, But the figures given above confirm him as to the fixed nature of the contagium—a view he has entertained for a long time, and which he promulgated many years ago when he wrote that "the volatility of the contagium of Glanders has not been sufficiently proven" (*Specielle Pathol. und Therap.*, Erlangen, 1855).

ENTOZOA IN THE ABDOMINAL CAVITY.

PROFESSOR ANACKER, of Berne (*Thierarzt*, 1875, *Rec. de Méd. Vétérinaire*, 1875), is of opinion that we are not sufficiently acquainted with the diseases occasioned by the presence of entozoa in the abdominal cavity, when these creatures have entered it after penetrating the walls of the intestines. He states that this occurrence is far from being rare, and especially with the *Ascarides*, whose mouth is horny and at times furnished with teeth. He has frequently found, on making an autopsy of dogs and cats supposed to have been poisoned, or to have died suddenly from some unknown cause, lesions of the mucous membrane of the small intestines, which could only be attributed to the presence of numerous *Ascarides*—especially the *Ascaris mystax*—which are sometimes found agglomerated in large clusters. The intestinal mucous membrane, and particularly that of the duodenum and near the pylorus, showed many small round points of a deep-red colour, and surrounded by a tumefied areola. The large number of these minute ulcers, due evidently to suction by the *Ascarides*, gave rise to a veritable Catarrhal Enteritis. In the cat, the same inflammatory condition of the mucous membrane of the intestine is not unfrequently produced by the *Tænia crassicola;* this form of Enteritis is often fatal to kittens. Unterberger, Delahays, and Prangé, have witnessed a mortality among rabbits, pigeons, and poultry, from the presence of *Ascarides*. In certain fishes—notably the bream—the intestinal walls are sometimes found completely perforated by the larvæ of *Ligula*, which give rise to Ascites and become a pellet of fat.

THE HISTOLOGY OF THE MAMMARY GLAND OF THE COW, AND THE PATHOLOGICAL CHANGES INDUCED IN THE SAME BY TUBERCULOSIS OR "PERLSUCHT."*

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(*Translated by F. S. Billings, from Virchow's Archiv*, vol. LXVII., part iv., p. 531.)

THE mammary glands are constructed, as is known, on the type of conglomerate glands. They possess lobulæ, formed by the union of the alveolæ, from which the *ductus lactiferi* proceed, and the branches of which form the excretory channels. Between the lobulæ and alveolæ we find connective tissue, in which vessels and nerves penetrate.

The alveolæ have, during the process of lactation, a clavated form, their length being 0·105 to 0·180 mm., and diameter 0·060 to 0·120 mm. The alveolæ form cysts, in which we recognise the secreting epithelium and *membrana propria*. The epithelium which lines the inner surface of the *membrana propria* varies in different parts of the gland. That in the alveolæ is cylindrical or cubical in form, and from 0·012 to 0·018 mm. in size, having a fine granular protoplasm, with a large oval or round nucleus which is very refracting in the fresh preparations. But if the preparation be hardened in

* *Perlsucht* is the German name for the disease commonly termed "*Tuberculosis*," but it is doubtful if this name is applicable, as will be seen from the following description; therefore, for want of a better, the German word is used in the translation. [In "Veterinary Sanitary Science and Police," vol. ii., p. 382, the question as to whether the Tuberculosis or *Perlsucht* of cattle is identical with Tuberculosis in man, has been fully discussed, and the views of Schueppel adduced in favour of this identity.

Müller's fluid or alcohol, and stained with carmine or hæmatoxylin, there may be seen one or two nucleoli in the nucleus. Under the epithelial layers may be recognised, here and there, small round sub-epithelial cells, sometimes pressed closely together, and exactly corresponding to those forms described by Heidenheim * as a strata of young epithelial cells (germ-cells) in the submaxillary gland. In other lobulæ, the alveolæ possess a stratiform epithelium, the cells of which are polygonal in form. The innermost stratum contains the largest cells; these usually contain fat globules. Beneath the inner layers of polygonal cells we find one or two rows of round sub-epithelial cells, varying from 0·003 to 0·006 mm. in size.

The fat globules are formed by the contents of the alveolæ, and are designated *milk corpuscles*. Upon the *membrana propria* we occasionally find flattened polygonal cells, which, by the action of a ½ per cent. solution of arg. nit., stained the protoplasm yellow or yellowish-brown, whilst their contours were black. In all these cases the *membrana propria* appeared as an idiocyntric membrane of connective tissue, whose connection with the epithelial cells could not be distinguished. The epithelial cells are completely isolated from the *membrana propria*. I saw the epithelial cells become detached, sometimes as irregular groups, at others in the form of scales, which, upon a closer observation, appeared to be isolated epithelial cells, which had been attached to the *membrana propria* by means of a glutinous substance.

Henle † was the first to observe and describe the stellate cells, which belong to the *membrana propria* in the mammary gland of the human subject. Langer ‡ confirms Henle's observation, and says that the *membrana propria* consists of the so-called stellate cells. Kölliker § describes the *membrana propria* as a structureless membrane; and Fürstenberg ‖ came to the same conclusion, after investigating the mammary gland of the cow. Langhaus ¶ thinks that the stellate cells do not form a constant part of the *membrana propria*, but that it is a structureless membrane, or composed of spindle-shaped cells.

In order to study the structure of the *membrana propria*, I took the normal mammary gland of the cow during lactation, and investigated fresh preparations, as well as those hardened in Müller's fluid and alcohol, and stained with carmine, hæmatoxylin, eosin, and tincture of iodine. I removed the epithelial layer from the *membrana propria* of some sections by pencilling; others were shaken in distilled water.

In preparations made in this manner, the *membrana propria* appeared as a membrane composed of flattened stellate connective-tissue cells, united by means of their processes. On a closer investigation, I convinced myself that their projections proceeded from the central part of the nucleated cells—not as a reticulum, but to be considered as striæ, seen in the compact homogeneous membrane; and that these fibres with their stellate cells, together with the homogeneous membrane, form a histological unit. In other alveolæ these striæ were spindle-shaped, from 0·003 to 0·012 mm. in diameter, and 0·015 mm. apart, and ran parallel to the greater diameter of the alveolæ. From these striæ pass off processes which appear as fine condensations (and

However the question may be finally determined, it is now evidently settled beyond dispute that the bovine malady can be transmitted by inoculation and ingestion of the morbid deposits.—Ed. *V. J.*]

* Stricker, *Handbuch d. Gewebelehre*, vol. i., p. 310.

† *Anatomie* ii., p. 46.

‡ Stricker, *Handbuch der Gewebelehre*, 1872, p. 627.

§ *Handbuch der Gewebelehre*, 1867.

‖ *Die Milchdrüse der Kuh:* Leipsig, 1869.

¶ *Virchow's Archiv*, vol. lix.

remind one of the reticulum) of the homogeneous membrane, lying between the above-described striæ. In the centre of the stellate, and in various parts of the spindle-formed condensations, we find round or oval nuclei from 0·003 to 0·006 mm. in size, surrounded by a thin layer of protoplasm. For the histological unity of the homogeneous membrane, with its striæ-like thickenings, testifies not only to the transformations of this condensation in the membrane, but also demonstrates the fact that this membrane could not be isolated by pencilling, nor through shaking it in distilled water. The membrane was uncoloured by arg. nit. (½ per cent.); whilst the glandular epithelium was stained yellow or brownish-yellow; the *membrana propria* offered a tolerably obstinate resistance to the action of weak acids and dilute alkaline solutions. I found that the *membrana propria* of the mammary gland of the cow had the same properties as other acinous glands, as described by Boll.* The interalveolar connective tissue is of a fine fibrous variety, containing oval and spindle-shaped cells, which are often united to the *membrana propria* by their processes. The diameter of the interalveolar connective tissue is, as a rule, from 0·003 to 0·006 mm. Between the blood capillaries of the interalveolar connective tissue and the outer surface of the *membrana propria*, we find it encircling the alveolæ, as described by Coyne† in the mammæ of the human subject. In order to convince myself of the existence of peri-alveolic (peri-acinic) lymph spaces, I injected into the interalveolar connective tissue of the mammary gland of a fresh slaughtered cow, a ½ per cent. solution of nitrate of silver. In several preparations we observed black or brown rings around the alveolæ, which I am inclined to consider as lymph-spaces filled with nitrate of silver. In other specimens I detected these rings in connection with lymph capillaries.

The lacteal ducts are lined with a single layer of cylindrical epithelium, from 0·015 to 0·018 mm. in length, and 0·006 to 0·012 mm. in diameter. These cells possess a fine granular protoplasm, with an oval nucleus 0·003 to 0·006 mm. in diameter, which is situated near the *membrana propria*. The contours of the protoplasm cannot be clearly distinguished in fresh preparations, so that it is difficult to distinctly define single cells.

The nucleus in fresh preparations is refracting, but in those treated with Müller's fluid and alcohol it becomes granular. Between the basic ends of the cylindrical epithelial cells, one sees here and there small round oval cells containing large granules from 0·003 to 0·006 mm. in diameter,—the so-called sub-epithelial cells (germ-cells). The cylindrical epithelial cells are not so projecting in the small excretory ducts as they are in the large, and they assume a cubical form as they enter the alveolæ, being 0·012 mm. in size. In the smallest excretory ducts I find the *membrana propria* possesses all the above-mentioned characters. The striæ run parallel to the length of the excretory duct; the distance between each being from 0·009 to 0·015 mm. The *membrana propria* could not be recognised in the excretory ducts; in its place I saw interweaving connective-tissue fibres, and circularly arranged non-striated muscular fibres lying parallel to the length of the excretory ducts, as Henle has described in the mammæ of the human subject, and Fürstenberg in the mammæ of the calf.

In the interlobular connective tissue I found oval, stellate and spindle-shaped connective-tissue cells and elastic fibres, as well as non-striated bundles from 0·015 to 0·045 mm. in thickness, surrounding the lobulæ. In these muscular bundles, particularly after staining the preparations with hæmatoxylin, I could distinctly recognise the non-striated muscular cells (myoblasts), which had the following dimensions: 0·030 mm. long, and 0·003

* *Beitrage zur mikroskopischen Anatomie der Acinösen Drüsen.* Berlin, 1869.
† *Centralblatt f. d. Med. Wissensch.* 1875, p. 110.

to 0·006 mm. in diameter. The width of the interlobular connective tissue is from 0·180 to 0·510 mm. The arteries and veins follow the same course as the excretory ducts. The capillaries wind spirally round the alveolæ, or form a network upon the external surface of the *membrana propria.**

After these histological discussions, I will describe the patho-anatomical changes in the mammary gland of the cow due to "Perlsucht."

"Perlsucht," as is known, is peculiar to cattle—the morbid products being developed upon the pleura and peritoneum as dense nodules the size of peas or hazel-nuts. These appear either as large single papilliform tumours, or as small clusters, united to each other and to the surface of the serosa by fibres of connective tissue. They are known in pathology by the name of pearl-nodules ("Perl-Knoten"). The sectional surface of these neoplasms presents a dense and coarsely-fibred appearance at the periphery, and is soft and fine-fibred in the centre. In the latter case the centre is caseous or calcareous. The lymphatic glands most frequently suffer from metastasis of the neoplasms; but sometimes the lungs and other organs are complicated. As early as 1817 Dupuy described "Perlsucht" as a specific disease, identical with Tuberculosis of the human subject. In the year 1831 Gurlt† was opposed to Dupuy's opinion, and considered the nodules as Sarcoma.

Virchow ‡ was the first to thoroughly examine these neoplasms and to describe them as Lympho-sarcoma. Their lympho-sarcomatous nature is based, according to Virchow, upon the fact that giant cells are developed in the connective-tissue matrix, from the connective-tissue cells; also from the persistency of the elements lying in the spaces of the coarse reticulum; as well as from the progressive, sometimes very rapid, growth of these nodules, and the metastases accompanying this growth.

Gerlach,§ Leisering,‖ Spinola,¶ and others have fed different animals with nodules, tuberculous caseous masses, as well as with the milk and flesh of cows which have succumbed to "Perlsucht." In these, as well as in other animals which have been similarly treated, neoplasms were found to be developed in various organs, and the small nodules were also observed to be very similar to the miliary tubercles of man.

From these experimental researches, as well as from the symptomatology and other clinical features of "Perlsucht," these investigators were led to the conclusion that this disease of cattle and Tuberculosis of the human subject were identical,—as Klebs,** had already attempted to show in another way.

Schüppel†† examined the nodules and tubercles histologically. He thought that both the nodules and the miliary tubercles were developed from giant-cells, and that the giant-cells were characteristic of both in their diagnostic relations. Schüppel also based his assertions as to the identity of the nodules and miliary tubercles upon their histological construction.

Gerlach, Leisering, and others returned to Dupuy's opinion. This opinion seems to have gained much ground, though it is not universal; as is shown by the results of experiments. Thus, miliary tubercles develop themselves if they find a suppurative or a caseous centre (Fränkel and Cohnheim, Ruge), and especially if foreign bodies are present, by the introduction of neoplastic

* The bloodvessels were injected with the following: Berlin blue, 5 grs.; oxalic acid, 5 grs.; gelatine, 50 grs.; aquæ, 50 grs.

† *Lehrbuch der pathologischen Anatomie der Haussangethiere.*

‡ *Würzburger Verhandl.*, 1857, vol. viii., p. 143; *Gesichwülste*, vol. ii., p. 739.

§ *Virchow's Archiv*, vol. li., p. 290; *Archiv f. Thierheilkunde.* Berlin, 1875, vol. i., p. 1.

‖ *Bericht über das Veterinarwesen in Sachsen*, 1864 and 1870.

¶ *Handbuch d. Patholog. und Therapie.* Berlin, 1858, vol. ii.

** *Virchow's Archiv*, 1868, vol. xliv., p. 266; 1870, vol. xlix., p. 291.

†† *Virchow's Archiv*, vol. lvi., p. 38.

detritus (Carcinoma, Sarcoma, and others) into the organism, or from the products of retrogressive metamorphosis of tissues (Vulpian, Lebert, Wyss).

The following question was submitted to me by Prof. Virchow: "What patho-anatomical changes take place in the mammary gland of the cow in 'Perlsucht'?" I accepted the suggestion to attempt the solution of this problem with great pleasure, because there had been so little done up to the present time to settle the question.

The materials for the following experiments were obtained from the mammary glands of six cows slaughtered because of "Perlsucht."

In one case I found, from histological investigation of the mammary gland, that lympho-sarcomatous neoplasms were present in a very early stage of development; in the other five there was merely catarrhal inflammation of the lacteal ducts, and chronic interstitial Mastitis.

Metastatic Lympho-sarcomatous Nodules in the Mammary Gland. (1st case.)

The animal was nine years of age; and on dissection we found nodules varying from the size of a pea to that of a hazel-nut upon the pleura, and in the lungs and bronchial glands.

There was discharged from the *sinus lactiferi* and *ductus lactiferi*, a yellow pus-like fluid containing small flakes. By a microscopical investigation of this fluid, I discovered a large quantity of round cells (pus-corpuscles), and also a number of white blood-corpuscles, which contained one or two small nuclei, or a single large one. The above-mentioned flakes appeared under the microscope as a conglomeration of round cells, which were held together by a granular mass soluble in acetic acid. The tissue of the mammary gland was compact, especially in the superior part. The interstitial connective tissue was very much developed, particularly in the vicinity of the *vena mammaria postica*, where one could distinctly see white striæ of connective tissue; some parts of the gland-lobules were atrophied, whilst other parts were raised above the level of the cut surface in the form of globules, about the size of peas; here and there could be noticed spots resembling adipose tissue, instead of the white lobules.

The lymphatic glands in the neighbourhood of the *vena mammaria postica* were in a hypertrophied condition, and contained a great number of nodules, which could not be distinguished from those on the pleura; the parenchyma had almost entirely disappeared in the centre of these glands, and was replaced by nodules; and only here and there could we recognise remains of the glandular tissue at the periphery of the gland between the nodules.

Different parts of the mammary gland were submitted to examination—some in the fresh condition, others after being hardened in Müller's fluid or a 36 per cent. solution of alcohol. Some of the microscopical sections were examined uncoloured, whilst others were stained (according to Ranvier's* method) by hæmatoxylin and picrocarmine.

Sections taken from the surface of the fresh mammary gland, after being scraped or teased out, and treated with a ½ per cent. solution of natrum chloratum, presented, under the microscope, round, stellate, oval and spindle-formed cellular elements, as well as the so-called giant cells. The round cells contained a large nucleus, with one or two nucleoli. In the stellate, oval, and spindle-formed cells, we found oval or biscuit-shaped nuclei, with one or more nucleoli. The giant cells were round and stellate, having small or large processes. The protoplasm of these cells was granular. The nuclei were situated either in the centre of the cell, or occupied the whole or only

* *Traité d'Histologie.* Paris, 1875.

part of the periphery. Sections of the fresh mammæ, made with a razor, demonstrated that in some places the interstitial tissues were in a fresh hyperplastic condition ; other places, on the contrary, were recognised as in the later stage of chronic interstitial Mastitis to a high degree—so much so that the interstitial connective tissue was present in double the quantity it is under normal conditions. Further, between the lobules and also the alveolæ of the glands, I saw round or oval nodules of a lympho-sarcomatous character, which have been described as the elements of the nodules. The nodules were from 0·075 to 0·450 mm. in size, and were composed of giant cells, connected by comparatively long and ramifying processes ; they were also united to the surrounding stellate connective-tissue cells and connective-tissue fibres, which form the reticulum of the nodules. In the alveolæ of the reticulum, one finds giant cells which exactly correspond to those just described ; also elements containing a single nucleus which resemble granulation or lymph-cells, between which are perceived fine fibres in connection with the reticulum.

In some lobules the excretory ducts were obliterated, whilst others were dilated in a varicose manner, and filled with round cells.

The alveolæ were atrophied in some places ; but in others they were distended, and lined with cubical epithelium. In their lumen were found a great quantity of fat-globules. These distended alveolæ were to be found in such places as we have above described, as microscopic white lobulæ, resembling adipose tissue.

The examination of preparations hardened in Müller's fluid rendered it possible for us to explain, and more exactly comprehend, the above-mentioned patho-anatomical changes.

In the above examinations of fresh preparations treated with a ½ per cent. solution of natrum chloratum, I could not clearly define the epithelium of the alveolæ and of the excretory ducts, nor the cellular elements of the previously-described nodules ; the protoplasm of the cells was very indistinct, but the nuclei could be more distinctly seen. By treating specimens with Müller's fluid, we render the cell-elements more distinctly visible from their surroundings, while the protoplasm appears slightly granular and the nucleus refracting and of a round or oval form. The nuclei are seen more distinctly if the preparation be hardened in alcohol and stained with hæmatoxylin ; whereas, if the specimen be treated with picrocarmine, the nucleus is stained red and the protoplasm yellowish-red, thus rendering the nucleus less visible. By colouring the specimen with carmine this object is frustrated, for not only are the cell-elements stained, but also the connective tissue. The case, however, was different when hæmatoxylin was used ; here the nucleus was stained a light violet and the protoplasm bluish, whilst the connective tissue remained unstained.

Preparations treated in this manner facilitate the study of the pathological processes in the interstitial and glandular tissues of the investigated organ. Therefore I am in a condition to discuss more closely the general phenomena already given of the patho-anatomical alterations. The interstitial connective tissue is exceedingly developed, and infiltrated with one or more round cells. Between these round cells I found giant cells, either separate or connected with each other : their size being from 0·030 to 0·075 mm., and containing from three to sixteen round or oval nuclei, measuring from 0·003 to 0·006 mm. Most of these nuclei are found near the periphery, and very seldom in the centre of the giant cells ; when the protoplasm is acted upon by a ½ per cent. solution of acetic acid, it becomes clearer, and the nuclei are more distinctly seen. The relations of their processes to one another, as well as to the stellate cells and the reticulum, were exactly as we have already described. I could also distinguish isolated giant cells among

the connective-tissue fibres. If the preparation be teased out, the reticular tissue distinctly shows itself, and reminds one of the adenoid tissue of the lymph-glands. Between the connective-tissue fibres which encircle the alveolæ, and those deposited around the neoplastic nodules, can be noticed hypoplastic connective tissue in various stages of growth, and whole rows of round cells containing a large nucleus. In single preparations, the reticulum which generally surrounded the giant cells was replaced by round, oval—nay, even by epithelial cells. I recognised between the round and oval cells, as well as in the reticulum, granular protoplasmic cells, about the size of hepatic or epithelial cells, which we find on the mucous membrane of the mouth. The cells contain two to three nuclei, measuring 0·003 to 0·006 mm., and from two to five nucleoli.

The blood and lymphatic vessels which we find throughout the normal interstitial tissue, were in many places obliterated, and the final ramifications of the bloodvessels often appeared as continuous lines of spindle-shaped cells.

The patho-anatomical changes in the alveolæ and excretory ducts may be enumerated as follows :—The single lobules are contracted, and far more distant from one another than in the normal condition ; the alveolæ are distended like kysts, through the obliteration of their excretory ducts, and are partly atrophied, partly obliterated, in such a manner that in their place rows of spindle-shaped cells are to be perceived, which show their origin through their connection with the *membrana propria* of the excretory ducts.

These alterations find their explanation in the hyperplasia which has taken place upon the interlobular and interalveolar connective tissue, as well as in the great number of neoplastic nodules.

In the partly-obliterated, partly varicose distended excretory ducts, we notice a strata of cylindrical epithelium, under which may be seen one or more strata of germinal epithelium in a state of proliferation ; further, thick fibres of connective tissue, which connects the surrounding connective tissue and the *membrana propria.*

In this case we observe numerous nodules in the interstitial tissue of the mammary gland, which occasion, through their development, either distension or contraction of the alveolæ and excretory ducts.

We look upon these nodules as connective-tissue neoplasms, and for the following reasons. Their matrix is connective tissue, which indicates the progressive development of the neoplasm, and surrounding the elements one finds extra-cellular products. In respect to the reticulum of these neoplasms (which has already been described), together with the round elements and extra-cellular products found in it, I believe myself justified in considering these neoplasms as lympho-sarcomatous.

It remains yet to be mentioned that the giant cells found in these neoplasms—a fact which is already known to many—are essential elements in the nodules. According to Virchow,* giant cells form a constituent of the most varying neoplasms, and not only develop themselves from the elements of other tissue cells, but also from epithelial cells, muscle fibres, capillaries, and the endothelium of veins.† Ziegler‡ considered the giant cells as altered

* It is due to Virchow that we no longer look upon all caseous products as tubercle. Through his researches the nature of tubercle is well defined. He considers tubercle to be a group of lymphomatous growths of an unstable character ; whilst he describes Lymphosarcoma, as well as the nodules of "Perlsucht," as neoplasms possessing a more permanent character.

† *Virchow's Archiv*, vol. xiv., p. 51.

‡ *Experimentelle untersuchungen iiber die Heskauft der Tubercle elemente mit besondere Berücksichtigung der Histologenese der Reisenzellen.* Wursburg.

colourless blood-corpuscles.* Rindfleisch thought they originated from epithelial cells. Brodowsky† considered them to be germ cells from capillaries. Schüppel and Visconti‡ held the opinion that they developed from bloodvessels. Klebs, Köster, Langhaus, and Hering§ viewed the giant cells as transverse sections of the capillaries and lymphvessels. According to Weyss, the giant cells have their origin in a confluence of granulation cells. I have never been able to witness the formation of giant cells by the degeneration of blood-corpuscles, nor from the germ cells of capillaries. I have observed bodies resembling giant cells in the nodules of the pleura and lungs; but upon examining them more closely, they appeared to be changed bloodvessels. Not only was their connection with the bloodvessels visible, but there was also a quantity of round and oval elements at their borders, which was nothing more than a proliferated condition of the capillary endothelium; and the fine fibrous or granular masses in the centre of these formations were nothing more than coagulated fibrin. Besides these bodies, genuine giant cells were visible in the nodules of the pleura, lungs, and mammary gland. I perceived, also, round and oval connective-tissue elements, having a large nucleus; also somewhat larger stellate cells, containing two or three nuclei, together with giant cells; and I am inclined to consider the two first as stages of development of giant cells.

I have likewise found the mammary gland of animals, slaughtered on account of "Perlsucht," to present exactly the same histological composition as that which Virchow found in the pleura, lungs, and lymph-glands of cows affected with the same malady, and which he described as Lympho-sarcoma.

This investigation led me to the conclusion that lympho-sarcomatous nodules can develop themselves as metastases in the mammary glands of animals suffering from "Perlsucht," and that the disease is not identical with Tuberculosis.

Catarrh of the Lacteal Ducts and Chronic Interstitial Mastitis (five cases).

The animals were of various ages—between eight and ten years.

On dissection, there were found nodules, from the size of a pea to that of a hazel-nut, upon the pleura and in the bronchial glands.

There was a great quantity of a dense pus-like fluid discharged from the *sinus lactiferi*, through the canal of the teat. A microscopical investigation of this fluid proved it to contain a considerable number of small cells, containing a single large or several small nuclei; also, occasionally, epithelial cells from the alveolæ and excretory ducts, having two or three nuclei. In some cases it escaped from the excretory ducts in a flocculent mass, in which I also detected round cells of the above-described character. Here and there the excretory ducts were obstructed by a caseous mass, the greater part of which was composed of contracted granular cells, about the size of blood-corpuscles, densely packed together. Between these cells we also found round elements, which had a large nucleus and sharp contours. The mucosa of the *sinus lactiferi* and larger lacteal ducts was thickened. A superficial section was very compact, showing that the interstitial tissue is very much developed; here and there were observed cysts, varying in size from a pea to a man's fist, which contain a caseous product. In this pulpy mass the micro-

* *Lehrbuch der pathologischen Gewebelehre*, 1875.

† *Virchow's Archiv*, vol. lxiii.

‡ Visconti, *Sulla origine della cellule giganteschе del sarcoma giganto-cellulare de tubercols e delle ossa.* Milan, 1875.

§ Klebs, *Virchow's Archiv*, vol. xliv., p. 286. Köster, *Virchow's Archiv*, vol. xlviii., p. 95. Langhaus, *Virchow's Archiv*, vol. xlii., p. 382. Hering, *Histologische und experimentelle Studien über Tuberculose.* Berlin, 1873, p. 105.

scope revealed small round cells, with large single nuclei ; and in the caseous mass, shrivelled pus-cells. In two cases, only one gland was involved ; in another, both were affected in the manner described.

Professor Virchow recommended me to examine how far the catarrhal process extended, and whether the pus-cells originated from the catarrhal inflammation of the mammary gland.

In order to accomplish this, I investigated in these cases preparations which were treated after the method above described. I found in the interstitial tissue of the mammary gland, connective tissue in a hyperplastic condition, and the connective tissue infiltrated with round granulation cells. The interlobular, as well as the interalveolar, connective tissues had attained a threefold thickness. The excretory ducts were varicosely dilated, and their lumen obstructed with round elements measuring from 0·003 to 0·006 mm. in size, containing a single large or several small nuclei. It is only here and there that the *membrana propria* is in such a high degree of proliferation that it cannot be distinguished from the interstitial tissue infiltrated and surrounded with round cells. I seldom found the excretory ducts in an early stage of catarrhal inflammation ; here the sub-epithelial cells (germ-cells) were proliferated and stratified,—so much so that the cylindrical epithelium was either between them or above them (the proliferation cells), and therefore removed to a far greater distance from the *membrana propria* than under normal conditions.

In the isolated epithelial cells lying between the layers of round cells, as well as in the groups of epithelial cells above the round elements, we found "clouded swelling." The lumen of the lacteal ducts free from catarrhal affection, was often found obstructed with round elements, the origin of which is to be sought in the surrounding parts affected with catarrhal inflammation.

The alveolæ also presented different stages of the catarrhal processes. In the sub-epithelial layer (germ stratum), we found an extensive hyperplasia ; whilst the *membrana propria* was normal and distinctly perceptible.

The lumen of the alveolæ was obstructed, partly by an accumulation of round cells, amongst which were scattered clouded epithelial cells, and partly by fine granular epithelial cells, and by several strata of round cells forced from the *membrana propria*, in consequence of which they occupied the centre of the lumen : seldom the reverse took place. The lumen of some alveolæ were filled with round cells, whilst the epithelium remained quite normal, and not detached from the *membrana propria*, as mentioned in the above cases. The question now presented itself, What caused the accumulation of round elements (pus-cells) in the lumen of the excretory ducts and alveolæ ? Virchow, Föster, and Rindfleisch examined two forms of suppurative inflammation—viz., one only superficial (epithelial), in which the inflammation attacked principally the epithelial layer ; the other deeper (parenchymatous), which, together with the deeper tissue layers, as the stratum mucosum and sub-mucosum and so forth, presented an inflammatory appearance. Remak, Buhl, and Eberth were of opinion that upon the epithelium pus-cells originated in an endogenous manner. Cohnheim showed that blood was necessary for the formation of pus ; since he proved that under certain conditions colourless blood-corpuscles exuded from the capillaries, and in this manner furnished the material for the pus.

From the above patho-anatomical changes noted in our cases, the pus-cells originated from the epithelial cells (germ cells) being in a state of proliferation ; for we neither found changes in the *membrana propria* nor in the interstitial tissues surrounding it, nor yet in the polygonal and cylindrical gland cells. This justifies us in considering these tissues as the seat of suppurative origin.

Up to the present time there has not been, as far as I know, any histological examination of the mammæ of the cow during inflammation ; * and the conditions of Mastitis in the human subject are very little understood, as is proved by the following words of Rindfleisch : "The histology of Mastitis is all but unknown. We must content ourselves with the conceptions of it we have won from inflammatory processes in similarly constructed glands, such as the salivary and the mammary gland, and thereby explain the various phenomena of Mastitis." †

Fürstenberg, Ackermann,‡ and others have only described inflammation of the cow's mammæ (Mammitis) macroscopically. Ackermann's opinion was that cows suffering from "Perlsucht" were affected with a tuberculous disease. It is little understood that catarrh of the lacteal ducts and interstitial Mastitis have nothing in common with "Perlsucht," and that these do not occur in cows affected with "Perlsucht," save as an accessory complication. The mammary glands of the cow, particularly during the period of lactation, are far more subject to inflammation than other organs ; consequently, inflammation occurs with extraordinary frequency in animals not affected with "Perlsucht." Therefore it is that we can find no cogent reason for assigning to such processes a tuberculous character. In making this observation, however, we do not dispute that a mammary gland affected with catarrh forms a favourable ground for the development of disease in other organs from metastasis. We have already mentioned that we found in our first case lympho-sarcomatous nodules in the inflamed mammary gland.

THE CAUSE OF RINDERPEST AND CHOLERA.

Dr. G. M. Asher, Extraordinary Professor at Heidelberg, who has been travelling in Russia, writes from "Malo-Usen," on the Wolga Steppes, an interesting article in the *Vossiche Zeitung*. It appears that in the Steppes of Eastern Russia there prevails a poisonous mildew, which, in many years, damages the crops beyond all calculation. This mildew is, according to the observations of many Germans in these regions, the cause of the terrible cattle-plague which, known as the Rinderpest, is enzoötic in Russia, and spreads thence to other European countries ; and, according to another and credible opinion, the mildew is also at the same time the cause of Cholera. The German colonists of the Wolga Steppes name it the "Höhenrauch"—thick yellow fog ; and in fact it resembles it very closely, the sky becoming dark, breathing difficult, and a nauseous musty kind of odour being perceived. This usually continues for three or four days ; and at this time, if the wheat is ripening, the crop is found to be entirely destroyed. The stalk and the husk become diseased ; the former shows numerous black spots, as if charred, and the latter is covered with a fine closely adhering powder, which is at first violet, and white at a later period. This appearance and alteration is probably due to a fungus. The vitality of the plant is sapped,—the crop is blighted, and many ears have no grain at all. When the colonists speak of the effects of this disease, they say, "The Höhenrauch has squeezed the maize."

When the mildew falls, or has fallen, the people in going over the land have their boots covered with a fine dark yellowish-brown dust. The couch grass becomes diseased ; and when the stalk is opened, it is found to contain

* We, as veterinary surgeons, ought to examine our cases histologically, and so be in a position to enlighten the sister profession by our investigations.

† Rindfleisch, *Lehrbuch der pathologischen Gewebelehre*, 1875, p. 478.

‡ Ackermann, *Jahresbericht für Jahr* 1875, p. 643.

a considerable quantity of the same kind of dust. In the opinion of the colonists, this dust is the cause of the Rinderpest. On the Steppe there are many stagnant, or almost stagnant, pools of water. The yellow-brown dust falls on these and forms a kind of scum over them, and when cattle drink from them they sicken from the Rinderpest. They never suffer from the disease through drinking running water. Once the Plague commences, it spreads with frightful rapidity, owing to its contagious nature, and frequently the villages lose more than half their cattle ; only the most rigid isolation checks its spread.

During the summer in which these investigations were made, the Rinderpest appeared spontaneously, and passing beyond the Steppe, invaded other countries ; the mildew was also more than ordinarily abundant, and the cattle drank very freely of the stagnant water.

With regard to the observation that Cholera is a concomitant of these *Hochenrauches*, or "yellow fogs," only one of the colonists questioned—a very intelligent schoolmaster—could give a satisfactory answer. It was elicited, as a matter of no importance, though rather surprising, that this schoolmaster was ignorant of the existence of a book published in 1848 in the Russian language, entitled the "History of the Saratow Country, by A. Leopoldow." In this work is a description of the first outbreak of Cholera, in 1830, with a statement that it was immediately preceded by the *Höhenrauch* alluded to by the colonists in the present year ; only it was a denser fog, more blighting, and more difficult to respire. The schoolmaster was not born until after 1830, so that the connection between the *Höhenrauch* and the Cholera was a recurrence, and not a mere coincidence. It is also remarkable that the Cholera in this Eastern region appeared in 1830 and 1831, and a year earlier it broke out in Western Europe. In 1830 it carried off more than 10 per cent. of the inhabitants of Saratow.

The *Höhenrauch* of the Wolga Steppe is, like the Sirocco, a south-east wind, and appears very extensively nearly every year. The fog, however, is seldom dense or very foul-smelling, and only in exceptional years are the crops injured ; so that it would appear that the grain must be pretty well developed in the ears before the fog can take effect upon it. Consequently, its effects are only distinctly witnessed for a few days. As the fog passes from the south-east to the north-west, the eastern or left bank of the Wolga is more affected by it than the right. In recent years, however, the crops on the right bank have suffered more than those on the left, simply because sowing commenced a week earlier on the latter, so that the wheat was about a week more forward in growth than on the right bank. It was said that only in this way could the loss of the harvest be accounted for on the right bank, while on the left there was a tolerably good yield. On the right bank only did Dr. Asher find people—the oldest in the country—whose memory carried them back to these bad harvests. He could not ascertain whether it was the same on the right bank. His inquiries were limited to the colonists who live between the 50th and 52nd degrees of latitude,—but it appears to be an indubitable fact, that further north the crops are exempted. Whether, in Southern Russia, there is any connection between failures in the harvest and this mildew, he does not know.

Declining at present to discuss further the question he has raised, Dr. Asher is content to direct attention to its special features and the great practical results which further inquiry may yield. In any case, he adds, the question possesses a high scientific interest in relation to wheat-disease, Rinderpest, and Cholera, and is well worth the notice of the Russian Government. The scientific inquirer, aided by the various countries interested in the solution of the serious problem as to the origin of these maladies, might pursue his investigations on the spot, and definitively settle the question.

"THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY."

[We have been requested to publish the following report.]

AT the last general meeting of the above Society, held in Manchester on the 10th of March, 1875, a resolution was passed that an annual Financial Statement or Balance Sheet should be published in the *Veterinary Journal* and *Veterinarian*. In obedience to such resolution, I beg to submit the following statement. THOMAS GREAVES, *Honorary Treasurer.*

Knott Mill, Manchester.

"THE NATIONAL VETERINARY MUTUAL DEFENCE SOCIETY."

TREASURER'S FINANCIAL STATEMENT, 1877.

CASH RECEIVED.	£	s.	d.	CASH PAID.	£	s.	d.
Balance of account on Oct. 10th, 1876, in bank and in hand .	325	15	5	Dec. 13th, 1876.			
Subscriptions from members from Oct. 10th, 1876, to Nov. 25th, 1877	81	9	10	Cheque for Messrs. Leather and Son—law expenses . . .	18	2	0
Bank interest : two half-years—Dec., 1876, and June, 1877 . .	3	11	10	Ditto, award for loss .	13	10	0
				March 17th, 1877.			
				Cheque for Mr. W. Elam —settlement of claim .	35	0	0
				Nov. 25th, 1877.			
				Stamps and Stationery for thirteen months, rent of room for meetings	2	13	11
				Cash in bank . .	341	11	2
	£410	17	1		£410	17	1
				Nov. 25th, 1877.			
				Amount owing at this date	51	5	0

Audited and found correct, 7th Dec., 1877, RICHARD S. REYNOLDS.

"THE NATIONAL BENEVOLENT VETERINARY SOCIETY."

TREASURER'S FINANCIAL STATEMENT.

CASH RECEIVED.	£	s.	d.	CASH PAID.	£	s.	d.
Balance of account on Oct. 10th, 1876, in bank and in hand .	842	17	9	Nov. 25th, 1877.			
Subscriptions from members from Oct. 10th, 1876, to Nov. 25th, 1877	10	0	8	Cash in bank . .	871	17	7
Bank interest : two half-years, Dec., 1876, and June, 1877 . . .	9	9	10				
Overpaid into bank .	9	9	4				
	£871	17	7		£871	17	7

Audited and found correct, 7th Dec., 1877, RICHARD S. REYNOLDS.

AMOUNTS RECEIVED FROM OCT. 10TH, 1876, TO NOV. 25TH, 1877.

	£	s.	d.
1876.			
Oct. 28th, Mr. James Carter	0	10	6
Nov. 10th, Mr. Hughes Ferguson	1	2	0
Nov. 12th, Messrs. Joseph Leather and Son, on account of trial	5	0	0
Nov. 16th, Mr. Samuel Newman	1	1	0
Nov. 17th, Mr. W. Elam.	3	3	0
1877.			
Mr. J. C. Bailey	1	1	0
„ John Howard	1	11	6
„ John Carless	1	1	0
„ William Carless	1	1	0
„ S. Withers	1	1	0
„ John Malcolme	0	10	6
„ Richard Reynolds	0	10	6
„ C. W. Elam	1	1	0
„ James Freeman.	0	10	6
„ Joseph Freeman	0	10	6
„ John Freeman	0	10	6
„ E. Meek	1	1	0
„ W. G. Schofield	0	10	6
„ Thomas Gregory	0	10	6
„ James Moon	1	1	0
„ Benjamin Cartledge	1	1	0
„ J. D. Overed	0	10	6
„ Henry Olver	0	10	6
„ John James	1	11	6
„ F. Samson	1	1	0
„ Joseph Welsby	1	1	0
T. D. Lambert	1	1	0
J. B. Gregory	0	10	6
Joseph Bale	0	10	6
„ A. C. Cope	2	2	0
„ T. G. Procter	1	1	0
„ Peter Taylor	1	1	0
„ Augustus Taylor	1	1	0
„ Thomas Greaves	1	1	0
„ W. Woods	0	10	6
„ W. Whittle	1	1	0
„ James Storrar	0	10	6
„ W. Walley	0	10	6
„ T. D. Broad	1	1	0
„ T. B. Hopkins	1	1	0
„ R. H. Dyer	1	1	0
Carried forward	£43	7	6

	£	s.	d.
Brought forward	43	7	6
Mr. W. Dobie	1	1	0
„ John Cuthbert	0	10	6
„ Thos. Pratt	1	11	6
„ T. Anderton	0	10	6
„ W. Broughton	0	10	6
„ J. L. Faulkner	0	10	6
„ T. Patteson	1	1	0
„ Alexander Lawson	1	1	0
„ James Brooks	0	10	6
„ W. Dacre	1	1	0
„ A. Rushall	1	1	0
„ John Lawson	1	1	0
„ James Carter	0	10	6
„ T. D. Broad	1	1	0
„ Gilbert Heyes	1	1	0
„ E. Nuttall.	0	10	6
„ Day	1	1	0
„ James Howel	2	2	0
„ John Malcolme	0	10	6
„ Thomas Cave	1	1	0
„ F. G. Samson, £5 (returned June 12th, 1877)			
„ T. Newman	0	10	6
„ A. L. Gibson	1	1	0
„ Joseph Collins	0	10	6
„ M. Smith	1	1	0
„ W. Elam (for trial)	5	0	0
„ D. R. Scruby	1	1	0
„ Wm. Pryer	0	10	6
„ M. Broad	1	1	0
„ Thomas Taylor	1	1	0
„ E. Woodger	2	2	0
„ F. Blakeway	1	1	0
„ M. Murphy	3	3	0
„ G. H. Pyatt	1	1	0
„ H. R. Perrins	1	1	0
„ J. A. Taylor	1	1	0
„ G. Carlis	1	1	0
„ B. H. Russell	1	11	6
„ H. M. Stanley	1	1	0
„ James Collins, P.V.S.A.	1	1	0
„ John Gerrard	1	1	0
„ George Newson	0	10	6
„ G. Darwell	1	1	0
„ G. Morgan	1	3	0
	£91	10	6

Examined and found correct, 7th Dec., 1877,
RICHARD S. REYNOLDS.

STIMULANTS AND THEIR USES.

"MANY a poor animal, depressed by over-exertion or by prolonged fasting, needs a 'pick up' or cordial fully as much as his master. But he does not often get one, and his exhausted energies are successfully recruited by his ordinary food, water, and rest, or, better still, by some soft palatable fare, such as a well-prepared mash or a warm gruel. When, however, health is disturbed—when the horse returns from work, not only tired, but shivering, with appetite gone, with perhaps a hot mouth and a sore throat—a good stimulant is further indicated. At this season of the year, when horses are changing their coats, unless carefully looked after, they are apt to get weak and out of sorts; chills, colds, and influenza attacks are common, and unless nipped in the bud are often troublesome, and liable to leave damaged wind and other evil consequences. These chills, colds, and febrile attacks, are usually best combated by the warm mash or gruel already advised, by warmly clothing the body, by hand-rubbing the legs, especially if they are cold, and subsequently swathing them in flannel or hay bandages; and by applying a mustard or other stimulating embrocation to the throat, particularly if there is any difficulty or soreness in swallowing, or any redness of the visible mucous membranes. If the horse is dull and shivering, he should further have a pint of warm ale and a glass of whisky or gin, whilst competent professional aid had better be procured. Neglected colds in horses, as in other animals, are sometimes very serious. They cannot safely be treated by the bleeding and pulling-down method, which is still sometimes ignorantly adopted. With the symptoms just sketched, your veterinarian, with careful attention to diet and nursing, will probably continue small doses of stimulants—a useful class of remedies, which may be briefly described.

"Stimulants promptly but temporarily increase nervous energy. They do not give strength, like tonics or restoratives, but rather call forth dormant strength. Amongst natural stimulants are cool, dry air exercise, hand-rubbing, and warmth, variously applied. Medicinal stimulants include alcohol, ethers, volatile oils, and ammonia. They become absorbed, and may often be detected in the blood and the various secretions and excretions. They usually excite the organs by which they are removed from the body, and hence frequently exhibit subordinate actions as diuretics or diaphoretics. Those which act with rapidity—such as ammonia and others—are sometimes termed diffusible stimulants; but these rapidly-developed effects are evanescent, and can only be maintained by frequently-repeated doses. Acting as they do on so many different organs, stimulants have a varied and extended field of usefulness. Defective and irregular nervous power, depending upon debility, are the chief indications for their use.

"Stimulants are sometimes classified according to the organs on which they chiefly act and the special uses to which they are applied. General stimulants—such as alcohol, ether, ammonia, and turpentine—are of signal service in sustaining the action of the heart and the powers of life in animals sinking from sudden shock, from loss of blood, and from poisoning by sedatives and some narcotics. They are effectual in combating congestion of the lungs, caused either by exposure to cold or by violent continued over-exertion, in controlling those shivering attacks which are so often the precursors of internal inflammation, in moderating exalted animal temperature, and abating tissue waste, as in Influenza, Typhoid Fever, and other debilitating diseases.

"Cardiac stimulants, represented by alcohol, ammonia, turpentine, and digitalis, are specially indicated in failure of the heart's action from shock, profound anæsthesia, severe continued labour, or exhausting disease. Used for such purposes, they sometimes receive the special title of cordials.

"Stomachics, such as ginger and the fruits of the umbelliferæ, are stimulants of which the effects are confined to the stomach; they improve the appetite and promote digestion. Carminates gently stimulate the stomach and intestinal mucous membrane, excite contractions of the muscular coat, and expel flatus. The carminatives in general use are spirits and warm water, ether, ammonia, essential oils, ginger, aniseed, and other umbelliferous fruits, assafœtida, and other fœtid gum resins.

"Most active diffusible stimulants are anti-spasmodic. They exalt and control nervous force, and thus overcome that depressed and perverted condition of the nerves or nervous centres on which spasm depends. In combating spasm, particularly of the intestines, such anti-spasmodics as alcohol, ether, ammonia, and turpentine, are conjoined with such anodyne narcotics as opium or belladonna, or such paralysers of motor centres as conium, Calabar bean, or anæsthetics.

"Some stimulants—such as alcohol, ether, and chloroform—act especially on the brain and spinal cord, particularly when given in large doses, and after a brief stage of excitement paralyse sensibility and consciousness, and form the connecting links between stimulants on the one hand and narcotics and anæsthetics on the other. Some stimulants act specially on the motor centres and nerves, excite, and in large doses tetanize, voluntary muscle. The representatives of this class are nux vomica, strychnine, benzine, thebaine, codeine, and theine. They are given in Chronic Paralysis and in Epilepsy, and Chorea depending upon debility.

"Stimulants such as belladonna, hyoscyamus, digitalis, and ergot, with their active principles, directly excite the sympathetic nervous system, and, besides sustaining the force and power of the heart, stimulate other involuntary muscles, control spasm, rouse the vaso-dilator nerves, and counteract capillary congestion and stasis. Belladonna, hyoscyamus, and stramonium, three solanaceous plants, with their active principles, besides more general effects, exert a special stimulant action on the sympathetic ganglia and nerves of the eye, consequently dilate the pupil, and are useful in ophthalmia, and in examination of the interior of the eye. Ergot of rye is a general constrictor of the bloodvessels, and is accordingly used for the arrest of bleeding, whilst it also specially stimulates the uterus, inducing its contraction and the expulsion of its contents."—*North British Agriculturist.*

ADDRESS ON RABIES AND HYDROPHOBIA.

Dr. Acland, Regius Professor of Medicine in Oxford University, delivered a lecture on November 30th, in the museum of the University, on "Rabies and Hydrophobia." The theatre was crowded. Among those present were, the Vice-Chancellor, the Dean of Christ Church, Professors Max Müller, Rolleston, Ruskin, Smith, and Dr. Freeborn, and many citizens.

Dr. Acland said: "It is known to many, I doubt not, that shortly before his death Brodie, the great surgeon, sent to me the parting charge to deliver in Oxford from time to time lectures which should explain in a simple way the principles by which health is maintained in a community. By lectures on National Health, on Sanitary Law, Sanitary Administration, Administration of Hospitals, Construction of Healthy Dwellings for the Working Classes, and in other ways, I have endeavoured to lay a broad foundation for this design. Now I take a restricted but pregnant subject, in accordance with the wishes of some whom I trust, as likely to be acceptable to the University. It has this further interest—that it is a subject within the domain of that great

department of biology, 'General and Comparative Pathology,' whose exposition is so urgently and increasingly needed, and for which I have once and again pleaded that a Chair should be founded at Oxford. The object to be attained is to show what Hydrophobia is, and how it comes to exist,—1. How it acts; 2. How it is spread; 3. How it is to be prevented. We look at these from a general rather than from a medical point of view. Hydrophobia, as all know, is the result of an animal poison operating on man. What does this mean? What are animal poisons? Whence do they come? How do they operate? The subject of Animal Poisons is one of strange—nay, of fascinating interest. It is so extensive that, if pursued in detail, it would wholly exhaust the patience of any who had not a special purpose in pursuing it in its manifold particulars. Some idea, however, may be very quickly gained. We are each of us constructed on a definite plan, the outcome of we know not how many myriads of ages operating under defined conditions by regular laws. We have a certain form which varies according to the race from which we spring. We are composed of matter much the same in all human beings, but little varying in all that enjoy animal life and consciousness. How strange, then, that this family, so knit up, should find in it members whose *rôle* seems to be that of bringing instant destruction to those about them for no purpose that we can see, neither for self-defence, nor for self-maintenance by way of food! Poisons, no doubt, surround us. We have heard enough of late of poisoning air, poisoning water, poisoning food, poisoning soil. The strangest of all is, that animals exist who themselves generate them for the sake of poisoning. Much of the poison which surrounds us is created by ourselves; its origin, therefore, may be to a great extent prevented by ourselves. But some poisons we cannot hinder. For instance, the poison of snakes. It is the simplest case of an animal communicable poison. No manner of life can hinder the snake from manufacturing his deadly dynamite, nor from using it when manufactured. The secreted poison which the dog emits when himself affected by Rabies, does not produce on man the same results which it produces on the dog; and it might be suspected, therefore, that there is something wild and uncertain in the *modus operandi* of a poison. It is not so. It has been well said by a classical writer that there are three important laws of poisons: 1. That all have certain definite and specific actions; 2. That they lie latent a certain but varying period of time before these actions are set up; 3. That the phenomena which result from the poison, when roused into action, vary according to the dose and the condition or special character of the victim. In illustration of the first of these laws, we may cite so familiar an instance as that Scarlet Fever will not produce Small-pox. As to the second—that a poison may be latent only a moment, as in the poison of prussic acid and the poison of the cobra, before the symptoms are set up; or it may be latent definite days, as in Measles; or uncertain (weeks, months, or even years), as in Hydrophobia. As to the third—temperament, the state of health, the mode of life, the race, the animal, the inheritance, as well as the nature of the poison itself, produce remarkable variations in the actions of some poisons. How does snake poison act so as to produce its terrible results? 'Snake poison,' says Sir Joseph Fayrer, 'is essentially a narcotic, and when it takes full effect it kills by annihilating the source of nerve force, in ways which bid fair to be elucidated by modern investigation.' I have to draw your attention to some microscopic preparations bearing on this subject which have been most obligingly brought for your inspection by my son from Dr. Gowers, Dr. Savage, and Dr. Greenfield, to whom I much desire to express my due obligations. It has been shown that the effect of such virulent poison as that of the cobra is—1st, by introduction into the blood; 2nd, by affecting nerves either at (*a*) their periphery, (*b*) their course, (*c*) their centre. It would

seem by various experiments, and by observations of cobra-poisoned animals and men, that the motor nerves alone, or the spinal cord (*i.e.* the centres), or the brain, may be each affected. But it would seem that cobra poison hardly affects the sensory nerves. Now, the poison created by the dog, our companion and friend, is in another category. It is not natural to him: he is himself a victim; the poison he transmits he has received. It works almost certainly his own destruction. He spreads it often without intention, sometimes without knowledge. Man perhaps helps to cause it in him by his treatment of him. It is a consequence of his faithfulness, and of his domestic relations, and of his familiarity, that he inflicts the injury on his master. The Rabies, which is his torment and curse, brings about the Hydrophobia in his protector and guardian. It lies with man to save the dog from the sickness which, once engendered, rebounds with terrible force on the human family. What, then, is Rabies? and how does Rabies arise? Probably never spontaneously; or if ever it does so, it is certainly with extreme rarity. It is communicated from one rabid animal to another animal, which becomes rabid. Whether it ever does originate except by communication is a question belonging to the interminable controversy of spontaneous generation. Many cases of detailed history might be quoted from the vast literature on this subject,—a literature the extent of which, from Aristotle till now, would surprise many. You may be referred to Youatt's work, or to the admirable and exhaustive writings of Fleming, the industrious advocate of the study of Comparative Pathology. We must apply to death from Rabies the same general principles as to death by snake bite; but in the one case the poison is transmitted at once, in the other it may lie dormant for years. It lies dormant probably by being entangled in the original seat of the wound. We must next pass on to the general geography and statistics of Rabies; and by the aid of some returns before you, I point out to you how few the numbers are as compared with the statistics of snake bites, or a disease like Cholera." [Here Dr. Acland explained and commented on various statistical diagrams, and a chart of the world showing the known habitats of Rabies.] "It remains to compare the effects of the dog poison on man with that of the cobra. There are points of similarity and points of divergence. The points of similarity are that the poison, if allowed to enter the circulation, is uniformly fatal; and secondly, that the fatal termination seems certainly to be by way of the nervous system. We are not yet in a condition to say with absolute precision what are the anatomical changes in the nervous system, either in man or in animals not man. But observations are rapidly accumulating. It is certain that in each case the injury arises from the introduction of the animal poison into the circulation. In each case, therefore, the end can be averted only by keeping the poison out of the circulation; or if in it, in a moderate quantity, maintaining life till it can be eliminated. The nervous symptoms in man, when once the poison has fairly entered the system, generally increase until the thirst and inability to drink remove all doubt as to the only result. The inability to drink is but a sign of deep-seated changes in the nerve structure. Professor Rolleston has pointed out to me that these changes, though hardly discernible, may be so great—having regard to the actual character of the force-producing nerve cell—as to explain entirely (1) the excitement, and (2) the destruction of the ordinary functions of the nerve centres which regulate life. In a paper to which the Professor referred me, by Dr. Mayor, I find it noticed that 'there may be differences between these delicate structures in man and other animals so slight as to be nearly unappreciable, but still differences of the widest significance and importance,' and so it may quite be that fundamental changes may take place by sudden shock or otherwise in the fine structures by which the nerve force is developed in man, and yet the physical changes may be wholly outside the reach of our

observation." [Having drawn a diagram to explain the effects which he had described, Dr. Acland continued],—"Hydrophobia occurring in man after communication of Rabies is thus shown to be a Toxoneurosis. It would not be desirable, nor would it be of use, before a mixed audience, to enter on a description of the symptoms of this form of death. I have thought it best rather to illustrate the nature and character of the malady in other ways. By favour of Dr. Gray, I some time since saw a case under his care in its latest agonies. But I forbear to describe it. We must admit that there is, as yet, no cure known for the disease when once established in man. The most extravagant remedies have been suggested. Every form of pharmacy and charlatanism has extended itself throughout all generations, advocated sometimes by even otherwise great names. But it is almost certainly preventable by prompt measures taken at the time when the injury is inflicted. The weight of evidence seems to show that the actual cautery is the most efficacious measure, excision the next, and caustics, though sometimes sufficient, are the least to be relied upon. I must advert to statements in the *Times*, and in other journals, to the effect that a case had been cured by means of the Wourali poison, by Dr. Offenberg. This is not the only case adduced. Another is reported from America. With respect to Offenberg's case I must own that, from information I have received from Germany, through the kindness of Dr. Victor Carus, an honoured D.C.L. of this University, I am by no means satisfied that it was a true case of Hydrophobia. Of the American case I cannot even say so much. Yet there is enough fully to justify, nay, to demand the trial of the potent agent. Of all the efforts of scientific medicine it will be one of the most remarkable should it turn out to be successful. The remedy itself is a terrible instrument. I received in the evening of Saturday, November 10th, a letter from the Infirmary in this place, saying that a boy had been brought there with the dread, if not with the signs, of Hydrophobia. He had been bitten in the hand by a dog three years ago, and two years ago in the leg. A pustular eruption the size of a shilling had just appeared at the seat of the bite on the hand, where was always a small scar. All concerned were in great alarm. On this seemingly simple matter some difficult questions arose :—1. Could the period of incubation, if the dog had been mad, be five or even two years?—On the historical evidence, Yes. 2. Would an eruption be likely to be the precursor of true Hydrophobia?—Yes. 3. If the genuine symptoms appeared would the boy recover?—Unless the alleged cases of cure by giving the Wourali poison were true, then, after the symptoms arose, death within four days was certain. 4. Can a person die of fright with spurious symptoms of Hydrophobia?—Yes. How simple, how strange, these questions and answers! Yet this is the issue raised in every case that occurs of dog bite, where the end of the dog is, as in this instance, unknown. It was, therefore, necessary to have Wourali prepared, so that it could be relied on. By the kindness of Mr. Yule, a solution of definite strength, with known and certain results, was instantly made. The symptoms, however, subsided. I will now come to what I think, under all circumstances, should be done in the way of general prevention. First of all, the State should impose a rigid dog tax, and should compel every dog to have a collar with the name of the owner and the number of the license; secondly, all dogs so unregistered should be mercilessly destroyed, if found in the street; thirdly, no importation of dogs should be allowed from foreign countries for a certain time, excepting under special conditions; and lastly (which is a suggestion of Mr. Fleming's), everybody, when he takes a dog license out, should be given instructions as to what should be done in case of dog bite. Thus, I have endeavoured to give a sketch of a disorder which has caused too much anxiety to many. Nothing can divest the subject of its wide and weird interest. Yet nothing can be more reassuring than

the knowledge of how entirely it may be brought under control. The marvel is that we are, and have been, so careless. You may prevent, you cannot cure. This word has been the message of medicine in the present age to man in more things than the poison of Rabies."

At the conclusion of the address, important and beautiful microscopic preparations were exhibited. By these it appeared that already scientific investigation is demonstrating, by aid of the most skilled microscopic appliances, the actual mechanical changes produced by Hydrophobia in the nerve tissues of the respiratory centres, in the medulla oblongata, and elsewhere in the nerve centres.

We have been unable, from want of space, to give the whole argument, or the passages quoted from various authors. The foregoing is a general summary of the address.

IMPORTATION OF LIVE STOCK FROM THE CONTINENT.

OUR readers are undoubtedly aware of the position we have long maintained and the views enunciated, both in this journal and in the public press, with regard to the measures necessary for the prevention and suppression of contagious diseases among the domestic animals. We have for many years insisted that it is worse than useless attempting to get rid of these diseases, which do such terrible damage to our agriculture and cause such serious loss to the public in this country, so long as we allowed the ingress of live stock from infected countries, and therefore incurred the risk of repeated introduction of these maladies from abroad. Port inspection we have shown to be unreliable, while slaughter at the port of debarkation—even with the exercise of all possible care and viligance—will not confer absolute safety. In proof of the latter assertion, we refer to the last invasion of Cattle Plague. Under these circumstances, and not without due consideration and weighing of the arguments *pro* and *con.*, we concluded that the largest measure of safety was to be found in limiting the food supply from foreign sources to that of dead meat—the animals to be slaughtered and their carcases dressed on the other side of the Channel. Not only would this reduce the danger of receiving contagious diseases to the lowest degree, but it would also be more profitable to the exporter, better in some respects for the consumer of such flesh, and also prove far more humane to the animals themselves, as they would then be spared much fatigue, if not positive cruelty in transit to our shores. The question was, and is, one which involves several important interests, and comes quite within the domain of veterinary sanitary science and police; it has received much discussion, and some authorities have even asserted that the importation of live stock from the Continent is absolutely necessary, and that, if prohibited, consumers of flesh would suffer from enhanced prices, scarcity, and other evils. We had no fear on this head: trade has a marvellous way of accommodating itself to circumstances, and we felt certain that neither producers nor consumers would be inconvenienced, but, on the contrary, would be benefited in time,—in fact, we anticipated that in a few years we should look back with astonishment and dismay at the then wasteful, inconvenient, unreasonable, and cruel mode of supplying meat from foreign sources to our population. The fears and dismal prognostications of those who adopted the opposite view, and maintained that we could not dispense with the importation of live cattle, has, almost in a few months, been proved to be unfounded; and as time goes on, the proof that we were correct in our estimate will become stronger and more evident. In the meantime we

would draw attention to the following remarks by the *Times*, which will show that, as on many other occasions, our predictions have not been baseless or exaggerated:—

"The prohibition of the importation of live cattle from a large portion of the Continent, made imperative this year (1877) by the arrival of infected cattle from Germany, has not diminished the supply of fresh meat for the United Kingdom, nor has it raised prices, even in London, which believed itself dependent for about a third of its beef and mutton upon arrivals of foreign animals. The trade in foreign animals has not been destroyed, and the decrease in importation has not confirmed the apprehensions expressed on behalf of consumers last spring. The number of cattle, sheep, and swine which we received from abroad in the ten months ended the 31st October, this year and last, appears thus, as arranged from the Trade and Navigation Accounts :—

	1876.	1877.	Decrease in 1877.
Oxen and bulls	149,584	131,915	17,669
Cows	51,712	23,169	28,543
Calves	41,286	28,279	13,007
Total cattle	242,582	183,363	59,219
Sheep and lambs	912,835	763,669	148,866
Swine	40,176	18,630	21,546

"In ten months the decrease in the number of oxen and bulls, most of them slaughtered at once for meat, and a small proportion sold to be grazed and fattened, has been only 17,669, or 11¾ per cent. Cows, which come principally to be milked or grazed before they are sent into the meat market, fell off in number more than one-half; but a loss of 28,543 Dutch and other cows is immaterial in connexion with the total supply of meat. The decrease in calves was 13,007, or nearly a third. Sheep and lambs were 148,866 fewer than in the corresponding ten months of 1876, being a decrease of nearly a third ; and the imports of swine fell off 21,546, or somewhat more than half.

"What we lost in weight of meat by this decrease in the number of foreign animals imported may be estimated with a fair approximation to the truth. Extensive inquiries into the probable average dead-weights of animals have been made by Mr. C. S. Read, M.P., Mr. James Howard, and Mr. John Algernon Clarke ; from which it appears that, with a moderate valuation, we may take the general average dead-weight of imported oxen and bulls at 5¾ cwt., of cows 5 cwt., of calves 1 cwt., of sheep and lambs ½ cwt., and of swine 1 cwt. The estimated dead-weight of foreign animals imported in ten months ended October 31st, in 1876 and 1877 respectively, will stand thus:—

	Average dead-weight per head. cwt.	1876. cwt.	1877. cwt.	Decrease in 1877. cwt.
Oxen and bulls	5¾	860,108	758,511	101,597
Cows	5	258,560	115,845	142,715
Calves	1	41,286	28,279	13,007
Total cattle	—	1,159,954	902,635	257,319
Sheep and lambs	½	456,417	381,984	74,433
Swine	1	40,176	18,630	21,546
Total weight	—	1,656,547	1,303,249	353,298

The total decrease in weight of meat imported as live animals in the last ten months was, according to this estimate, 353,298 cwt., or scarcely more than a fifth below the quantity in the corresponding period of 1876.

"Now, it is very satisfactory to find that this diminution of supply was far more than compensated by a great increase in the arrivals of fresh dead meat. In the ten months we received as follows :—

	1876. cwt.	1877. cwt.		Increase in 1877. cwt.
Beef, fresh or slightly salted	96,847	412,034		315,187
Meat unenumerated, principally fresh mutton	66,198	93,433		27,235
Meat preserved otherwise than by salting	208,363	388,465		180,102
Fresh pork	20,309	7,712	(less)	12,597
Total	391,717	901,644		509,927

"The shipments of fresh dead meat from abroad have increased 509,927 cwt., or no less than 130 per cent.; and while we have lost 353,298 cwt. of fresh meat in the shape of live animals, we have gained 509,927 cwt. of fresh meat, which has come ready killed in hampers, packages, cloths, or tins.

"Already the quantity of foreign fresh meat coming to us dead is considerably over half as much as that coming to us alive ; the 901,644 cwt. of fresh dead meat received in the last ten months being 54 per cent. as compared with the 1,656,547 cwt. of live animals imported in the corresponding months of 1876, before the Cattle Plague restrictions were put on; and, at the present rate of increase in the dead meat trade, the quantity of foreign fresh meat brought to us dead will in less than a year reach the total weight of that brought to us alive.

"The supplies of foreign salted meat have but slightly increased. In the period referred to there has been a considerable falling-off in the imports of bacon, of salted beef, and of salted pork, though the weight of hams is very much more.

"Taking both salt and fresh meat, the total weight of dead meat imported into the United Kingdom now exceeds the estimated dead weight of all the live animals imported. For in the ten months of 1877 we have received 790,915 cwt. of salted meat, and 901,644 cwt. of fresh, of slightly salted, and of preserved meat—making a total importation of 1,692,559 cwt.; whereas the estimated dead-weight of the live animals imported in the ten months of 1876, before the imports were published, was 1,656,547 cwt.

"Of course the foreign supply of live and dead meat together bears only a small proportion to the quantity produced by our home breeders and graziers."

TEXAS FEVER.

To the *American Veterinary Review* for November, 1877, Veterinary Surgeon J. Myers, of Cincinnati, Ohio, contributes an interesting paper on the peculiar and somewhat obscure disease known as "Texas Fever," which has recently been prevailing somewhat extensively in some parts of the American continent, as we intimated in the *Veterinary Journal* for last November. Seeing that live cattle are now imported into this country from the United States, it is imperatively necessary that everything relating to the contagious disorders of stock on the other side of the Atlantic should be known here. We therefore consider this, the latest contribution to the literature of the disease, worthy of transference to our pages.

Mr. Myers writes : "The scrupulous management of the sanitary police ordination on the Eastern Continent partly, and partly the contemplated

exportation of American cattle, induced me to draw the attention of the veterinary profession to this enzoöty,—viz., Texas Cattle Plague, Texas Fever, Spanish Fever, or Splenic Fever,—the propagation of which is thought to be due to contagion. The virus is generated within cattle of the Gulf region (being endowed with mysterious properties), and is transmitted by them in the eastern and central States, where they spread the disease among the cattle with which they come in contact, while their own health remains unimpaired. Considering these circumstances, it is quite probable that the authorities of such districts in which foreign cattle are unloaded, will enforce protective measures against the invasion of plagues; and, moreover, should one or more among a lot of these bovine emigrants prove indisposed—which is very likely to be the case when such dumb animals as have never been incarcerated before are doomed to a fortnight's rail or sea journey—they would make their inspection with even more precision. As to the extent to which such sanitary precautions are necessary, the following facts in reference to the disease may be taken into consideration. Incomplete as they are, I deem it justifiable to communicate fragments, expecting by these means to stir up scattered relative substance, which might in the end serve as a foundation of trustworthy instruction as to how this evil might be prevented or cured.

"SYMPTOMATOLOGY.—This disease, which is compared with, or even identified, as Anthrax, is characterized by the painless evacuation of a reddish-black, sometimes coffee-coloured, turbid, though not always abnormally-odoured, urine; this, after standing for twenty-four hours, throws down a brick-coloured precipitate, which is sometimes streaked with blood. At the same time the secretion of milk is suspended,—a circumstance which first attracts the owner's attention. Rumination is suspended, and food is refused, though there is a moderate desire for water. The patient remains apart from the other animals in the herd, with hanging head, ears drooping, viscid saliva flowing from the mouth, mixed with mucus from the nostrils, muzzle moist, an inconstant discharge from the eyes, and the conjunctivæ pale, with the larger vessels prominent, but not engorged. At the commencement the temperature is increased, then fluctuates, and finally decreases. When the animal is standing, the limbs approach each other; in the recumbent position they are flexed, the head being extended, with the lower jaw resting on the ground; if an unsuccessful attempt is made to get up, the animal falls again upon its side. During the first stage the gait is "dragging," gradually becoming unsteady, and at last altogether impossible—indicating a complete collapse of the nervous and physical force. The mucous membranes, particularly that of the buccal cavity, present a greyish hue; deglutition is sometimes impaired; the fæces at the commencement are soft, and occasionally streaked with blood—the colour depending upon the kind of food previously consumed; and if the patient lingers for a number of days the consistency is changeable; the peristaltic movements are evidently sluggish, but symptoms of Colic pains have never been observed. The frequent respirations are sometimes accompanied by cough and moans, though without any energetic action of the abdominal and thoracic muscles. In the majority of cases the circulation keeps pace with the respiratory acts—the pulse numbering from 80 to 120 per minute—and as it increases it loses its tonicity. The action of the heart is, in general, scarcely perceptible.

"About two-thirds of a pint of blood drawn from the jugular vein more resembled arterial than venous blood; it coagulated within ten minutes, the supernatant serum being of a reddish-yellow tinge. It must be understood that the symptoms are not at all times the same, they being dependent upon the progress of the case. The most important diagnostic symptom is the character of the urine; but since we are unable to be present personally at all times, the history of the case as given by the attendant (however unreliable

it may occasionally be), must suffice, and is indispensable unless previous cases appeared in like manner, and which, of course, must be traced in the same way.

"PATHOLOGICAL ANATOMY.—In one instance I observed *post-mortem* rigidity, which I did not notice in others. Tympanitis, as well as emphysema, I noted only in such cases as had been dead for several hours; while in those which had just expired there was collapse of the abdomen. The bloodvessels of the subcutaneous tissues were very seldom engorged. In some cases the muscles were pale, and in others bluish-tinted. The adipose tissue usually presented a healthy aspect, though in some instances it was yellowish-coloured. The abdominal cavity generally contained from one-half to one pint of serum. The external surface of the stomach often had an abnormal appearance; where it was in contact with the liver it had a yellow hue, and with the spleen a sanguineous tint. The rumen was nearly always very full of food; the reticulum was either partly or entirely empty; the omasum was filled with the usual quantity of dry food, though in exceptional cases it was empty; and the abomasum nearly always contained an offensive 'mashy' mass. The contents of the ileum, cæcum, and colon were in nearly every instance of a like offensive character; and dry, oftentimes bloody fæces were found in the rectum, unless death occurred during purgation. The external aspect of the alimentary canal seldom afforded any evidence as to its interior, the tinge being usually yellow. In those animals which had been destroyed the mucous membrane showed traces of inflammation, while in those which had died it was partially detached, had a greyish hue, and the denuded muscular coat was congested; the mucous membrane of the small intestines was softened, covered with bloody mucus, and the intestine itself was distended with gas; Peyer's patches were enlarged and livid. The internal coat of the large intestines, as well as a portion of the ileum, presented circumscribed greyish-green or yellowish patches, which had a gangrenous odour. The latter change was not observed in those cattle which were destroyed; in these the liver, in the second stage of the disease, was merely enlarged—indicating the existence of acute or sub-acute inflammation; in those which died, this organ was generally found to be undergoing decomposition; externally, it was either of a yellowish, brownish, or brick colour; the veins traversing it contained a small quantity of purple-tinted blood. The gall-bladder was usually filled with dark-coloured bile of the consistency of honey, or a more normal fluid of a yellow or greenish colour. In destroyed cattle the spleen was enlarged, its texture only slightly altered—in fact, it was merely in a state of hyperæmia. In those which died it was more voluminous and emphysematous, and its pulp was semi-fluid and viscid, something like decomposed blood. The lumbar and iliac glands in two cases I found considerably enlarged, and in a decomposed state. The colour and texture of the kidneys were varied; the parenchyma of those destroyed at the commencement of the disease presented a hyperæmic, slightly swollen, dark-red, but compact appearance; while in those which died it was quite black or dark-grey, softened, and apparently at the point of dissolution. The bladder, in the majority of cases, was filled with a blood-red or coffee-coloured urine, which readily responded to the tests for albumen; and the mucous membrane was relaxed, though there was no trace of inflammation. The lungs were generally healthy, the few exceptions showing that the inflammatory alterations were caused by irrational drenching, these being traced as high as the larynx; in such cases not only was the lining membrane of the trachea, but also the subjacent muscular and cellular structures were infiltrated with blood. The heart was pale and flaccid; and in one case the endocardium was ecchymosed on the right, in another on the left, and in a third on both sides; in those which died, this organ contained ash-grey and dark-coloured fibrinous clots. In a few exceptional

cases the pericardium contained several ounces of serum. The vena cava usually contained small quantities of blood or clots, some of which, on account of their consistency and discoloration, might have been taken for pathological products.

"The analysis of the blood, undertaken by order of the Board of Health, did not yield any satisfactory result. In order to satisfy my own curiosity, I requested an expert to examine such blood microscopically—suspecting blood changes, as in Anæmia, Leukæmia, and the like; but he naïvely informed me that he was only acquainted with the analysis of human blood. The symptomatology of this disease, as described in the handbooks at my disposal, differed from that of my cases; therefore I was the more anxious to know with what I had to deal.

"The progress of this disease is rapid, the majority of animals expiring within two and a half to four days; in exceptional instances it extended to seven and eight days. The course of the malady appeared to be governed by variations in temperature; I, at least, observed that animals attacked in the months of July and August ran a more rapid course than those affected in September.

"ETIOLOGY.—Some individuals claim this as a mystery; others assert that it is originated by direct contagion communicated by cattle transported from the Gulf regions; but cases have come under my observation in which I was unable to trace any contagion, and which had all the evidence of spontaneous origin. For this reason I cannot agree with the aforesaid assertion unconditionally; although we have sufficient proof that cattle running at large, or in pasture where they may come in contact with the Texas cattle, are more readily exposed to infection than those kept in stables; and from May until October exclusively, and less in wet than in dry seasons, when the scarcity of fresh good water compels them to quench their thirst with stagnant water. In this way numberless infusoria, and other matters deleterious to health, are conveyed into the system—the result being a contamination of the chyme, the composition of which, besides the withered grass, consists of innutritious and even toxic vegetation (as when animals desire to refresh themselves with something cool and juicy, they will eat plants and drink water which at other times they would refuse), thereby infecting the alimentary canal and its associate organs. The injurious effects are not confined to the vascular system alone, but extend to the adenotomic organs in the abdominal cavity. The organs are important agents in the formation and purification of the blood, and therefore, becoming impaired as soon as these obnoxious ingredients arrive for transformation or elimination, injury is inflicted not only on the glands themselves, but on the entire organism. All this may, under favourable conditions, be sufficient to develop an infectious germ; and in this way we may have spontaneous cases of the disease, which carry the virus wherever the sick animals may be carried—whether among the mature bovine inhabitants of hilly countries, or those of lowlands and valleys, or creek and river precincts, particularly those districts influenced by the tide.

"Whether the infective principle is fixed or volatile, and what its *modus operandi* is, remains to be ascertained. Considering the locality in which the disease most frequently appears, we are obliged to attribute some share to miasmatic influences. The evidence before us inclines us to believe that the system of southern stock must be impregnated with the effluvial atmosphere prevailing in that climate. This may account for the inviolability of that stock, and the tenacity of the virus which our native stock inhale from their excrements. Even the expirations may be charged with poison, and will act as such in the summer if the animals change their home to any north-eastern States. It is also asserted that they are subject to infection after becoming acclimatised.

"Not having anything important to add to this miasmatic topic, I do not hesitate to acknowledge my predilection for the germ theory, which accounts for the otherwise mysterious sweeping away of entire herds, dairies, etc., within a week or two. Innumerable statements as to such mortality are made in agricultural reports and periodicals; but the sporadic outbreaks are almost entirely ignored. To prevent the disease, it is necessary, in the first place, to examine thoroughly into its causes and nature; the latter is a problem yet to be solved, but must not be neglected if prophylactic measures are to be instituted with a view to prevent such calamities. My experience of the disease prevents me giving a positive opinion as to its period of incubation; but from two days to five weeks seems to be the average time the poison requires to develop the disease.

"The prognosis is unfavourable, especially in midsummer. With regard to treatment, no remedy has, as yet, given satisfaction. The salicylic and carbolic acids, with some mucilaginous infusions, seldom did any good. Bromide potassa, with glycerine, and extract encalyptus globulus and water, proved to be no better; nor did quinia give any more favourable results. Fomenting the abdomen with warm water, and also applying mustard or red pepper thereto, were also resorted to. I must, however, admit that all my therapeutical experiments were unsatisfactory; the rapid course of the disease, and lack of time to give proper attention to the action of medicines, frustrated a systematic procedure.

"It appears to me likely, if not certain, that this morbid condition is dependent on an acute decomposition of the blood (*sepsis sanguinis*), chiefly manifested in the abnormally-coloured urine, the coloration being due to some liberated hæmatin and cholochrome. The malady appears during the hot summer months.

"Calves and other ruminants have been exempted from it. A superficial examination of the disease at once shows that its analogy with Anthrax is untenable. Yet Mr. Fleming, in his excellent work on 'Sanitary Science and Police,' favours this idea. I also express doubt as to paragraph 4, page 212, vol. ii., in that work, which states as follows: 'Animals receiving the infection from southern cattle do not communicate it to other natives,' etc. I have no positive proof to the contrary; but in order to caution interested individuals, I deem it necessary to cite two instances which will not correspond with the assertion of Mr. Fleming. Two years ago, at midsummer, a farmer, Mr. Hamilton, near Hamilton, Ohio, made a contract with two drovers to supply him with neat cattle, *home-bred*. They fulfilled their engagement so far as two lots were concerned. The second transport arrived two weeks after the first. Two days after the second lot arrived, one of them became ill and died. Twenty-four hours subsequently, one of the first lot was also attacked, and succumbed in two days. From this time forth one or two were affected every day, without distinction of lots, until the drovers took away the remaining ten of the last lot, the others apparently mending. A repetition of the same occurrence took place at a distillery in my neighbourhood. All went well until the second division was installed,—when sickness set in; but owing to the low temperature which came to their rescue, only four per cent. were lost. In this last instance we see the malady break out in the stable; the animals are fed on hay and corn-swill (seldom heard of); and in both instances the native cattle have been apparently disseminating the ailment among themselves. Not having evidence as to whether one or all have been infected by the Texas stock, I leave it to others to make their own comment."

In addition to the above paper on this destructive malady, there is an excellent article in the American *Live Stock Journal* for November, from

the pen of its able editor, we presume—Professor Law. The importance of the subject to this country compels us to reproduce this notice.

"While the season for the development of new cases of this disease has been virtually closed by the supervention of frost, it would be unwise to forget our recent experience, and to ignore the fact that the same will be repeated year by year, with increasing frequency and a progressive mortality, unless measures are taken to keep it in check. The present year is the worst we have experienced since 1868; but by no means the worst we are likely to endure, if we maintain our present *laissez-faire* attitude in the matter. In short, we are exactly repeating the history of the cattle and Texas Fever trade, which ensued upon the close of the war. Peace naturally brought a large influx of cattle from the south; and, as stock was specially wanted in summer to feed on the luxuriant pastures, the transfer took place mainly in the warm season. The southern stock did well on the northern pastures, and liberal profits led to a wider and wider extension of the traffic, until the long-horned Texan steer became an every-day visitor in the slaughterhouses of all great northern cities. But it was soon found that where these Texans had grazed the pasture was poisoned for all northern stock, and that even the roads they had travelled were contaminated with a deadly virus. This state of things culminated in the long, hot, and dry summer of 1868, in which year the mortality in the Northern States exceeded 15,000 head, at a value of half a million dollars. Threatened with ruin, the owners threw upon the markets the remainder of those herds in which the disease had shown itself; and the inevitable spectacle of sick, dying, and dead cattle on the roads, in the railroad cars, in the stock-yards, in the public streets of cities, and in the abattoirs, startled the average citizen, and roused the gravest apprehensions as to the sufficiency and wholesomeness of our meat supplies. A panic ensued; the subject was investigated by boards of health and Cattle Plague commissions, and the result was a wholesome regulation of the dangerous traffic. The middle and northern States enacted laws forbidding the importation of southern cattle, excepting during the frosts of winter; and for some years a comparative immunity was secured.

"But this immunity has bred carelessness. In some cases the protective laws have been allowed to expire by limitation, and all efforts to render them permanent have met with the strongest opposition; in others they have simply been forgotten or ignored—a steadily extending disease has virtually abrogated them—and southern cattle have invaded the northern pastures in yearly increasing numbers. To this the increasing facilities of transit, by reason of continuous railroad extension, have largely contributed, and we are now rapidly approaching a second general diffusion of the disease. In 1876 the outbreak again appeared, and several localities in the State of New York, and even New England, suffered—considerable losses having been sustained around the city of Worcester, Mass. In 1877 the progress has been much more manifest. Besides the extensive losses in Central Illinois, and at Cleveland, and other places in Ohio, the virus has been carried into numerous places in New York, Canada, and New England. The Cleveland outbreaks appear to have been largely dependent on the interruption of railway communication with the east for a few days during the strikes in July, and supply a very instructive lesson as to the extent to which the trade in southern cattle has grown. If the cattle stopped during a few days of suspension of traffic could scatter the germs of disease and death over the pastures generally in the vicinity of Cleveland, what is to be expected from the whole numbers carried in the course of the summer! What has been mainly instrumental in saving us is that most of these cattle have been sent on for immediate slaughter. The outbreaks in New York have been chiefly where butchers have been tempted to engage pasturage for their animals for

a few days, until they should be ready to kill. This was the case at Brighton, Monroe County; North Bangor, Franklin County; Waterton, and Schenectady. Of the outbreaks in Canada and Washington County, Vt., the evidence is not so clear.

"A development of the disease at Big Flats, Chemung County, N.Y., points to another and far more serious danger, attendant upon this traffic. A farmer bought in Buffalo a herd of steers, purporting to come from Wisconsin; and, a week after their arrival at his farm, a number sickened with Texas Fever. The steers in question had clean hides, entirely destitute of ticks; and having taken ill so soon after their arrival, they furnish strong presumptive evidence of having been selected from an infected herd, cleaned of their parasites, and thrown on the market to save further loss to their owner. Instances of this kind will continually crop out, wherever a communicable disease is allowed to maintain a foothold in a country,—as by this means the unscrupulous can turn their losses, to a large extent, upon innocent victims. Then a disease like Texas Fever, in which the poison remains latent and unsuspected for several weeks in the system of the already infected animal, affords the most favourable opportunity for perpetrating such unworthy tricks with impunity. This is the most common mode by which contagious diseases are spread; and great extensions of these affections are confidently looked for in Europe after the large yearly markets for store cattle.

"Though much has been written on the subject of Texas Fever, still more remains to be discovered by a careful experimental investigation into its causes and phenomena. We know it as a disease in which the blood and other fluids of the body contain germs of a fungus, in which the blood particles (globules) break down, and diffuse their colouring matter through the liquid portion, as well as into the urine and bowels; the liver is congested, and the elements of bile pass into the circulation and stain the tissues; the spleen is gorged with black, tarry blood, sometimes almost to rupture, and the digestive organs (notably the fourth stomach, the small intestines and the rectum) are the seat of stagnation of blood in the capillary vessels, extreme redness, softening, and even ulceration. But we do not know the exact pathology of the disease: whether the vegetable germs are the cause of the disease, or mere accidental attendants upon it; whether the poison is confined to the digestive canal or diffused through the blood and system at large; why it is that sucking calves escape, though sucking several sick cows in succession; and why the disease is rarely or never transmitted from one diseased beast to another in the north. At first sight, these may appear unimportant questions, inasmuch as we know that the danger consists in the bringing of northern cattle in contact with those from the south, or with the pastures, roads, yards, boats, cars, etc., previously occupied by these; and that little danger attaches to mere proximity, since a fence will usually form a sufficient barrier to the virus. But, on the other hand, a system of prevention which is founded on a knowledge of the true nature of the disease and its modes of propagation would probably be much more rational, efficient and economical than one which is merely empirical and founded on the observation of effects rather than on an acquaintance with the causes.

"That the disease is not developed by ill usage on the passage north, as some claim, is abundantly evident, for it is not the travelled and abused cattle that suffer, but the northern beasts, to which they bring the poison; and we have abundant evidence that the strange cattle taken to the coast of the Gulf of Mexico, or to the islands in the Gulf, are mostly cut off by this affection soon after their arrival. The poison is certainly indigenous to the region in question, and respects the native cattle to a very large extent, merely because they have become acclimated and fortified against its attacks

by the 'survival of the fittest,' while the more susceptible families have been cut off.

"*Preventive Measures.*

"In the present state of our knowledge, our safety consists in preventing the introduction of southern cattle into the northern States, excepting during the continuance of frost. How far north the proscribed area should extend, it is difficult to decide. The 35° of north latitude has been suggested as the limit; but this would probably fail to protect, as Cherokee cattle are found to be as dangerous as Texans, though largely bred north of this line. The line of safety will probably be found to be that which bounds the ravages of the winter frosts in destroying the vegetation of the previous year. In the north we find that a frost which withers the grass destroys the germs of the poison; and we may presume that the same will hold good for the southern States as well. This will vary much, according to the severity of the winter; and in this is to be found a partial explanation of the greater prevalence of Texas Fever in certain years than in others. Thus, the winter of 1876-7 was less extreme than either of the two preceding ones, and this year we are suffering from a much more extended prevalence of the Texas Fever. This suggests a question as to whether a consultation of the Signal Service reports would not enable us year by year to fix upon a line of demarcation, beyond which it would be unsafe, and should therefore be forbidden, to ship cattle *northward*, and north of which the traffic would be safe, and therefore unrestricted. This is merely advanced as a strong probability, and ought not to be acted upon without misgivings until we know whether, in certain localities, the poison does not exist in the soil at a depth to which a frost which destroys the grass would fail to reach. It is, however, worthy of investigation; and if it is found that it can be safely adopted, the increased facilities thus given to the cattle trade will be of great national value.

"One reservation must be made in the matter of moving cattle during frost. The mere arrival during the last frost of spring will be no protection against the propagation of the disease, as the germs, resident in the bodies of the animals, will be given off for a length of time, and unless they are met by frost when passed from the body they will remain virulent. Hence the laws recently in operation in various States, set the 1st of March as the limit for the introduction of southern cattle in the spring.

"Whether this work of prevention should be the duty of the individual States or of the United States Government, will be matter for difference of opinion. For ourselves, we are fully convinced that it ought to be undertaken by the United States. We recognise the duty of the Central Government in the protection of our ports against the introduction of foreign animal plagues; and a parallel course of reasoning would demand from the same source a general protection from communicable diseases of indigenous origin. No State has a right to make herself the highway for transmitting a plague which will prove deadly to the flocks and herds of her neighbour. Yet two States (Iowa and Missouri), in their protective laws, incorporated a clause whereby it was permitted to carry southern cattle through the States by rail, provided they were not unloaded. Laws of this kind opened the door for the introduction of the disease to the far north, in spite of all the trouble and expense of maintaining a supervision of the cattle trade on the frontiers of the middle States. It even allowed of the possibility of shipping and re-shipping, or, in other words, of "cooking the waybills," so that on their arrival at their destination such cattle would purport to have come from a healthy locality, and would be purchased and mixed with northern stock without apprehension. All of this would be obviated by a uniform system, under a central authority, and carried out with strict impartiality. The supervision would

be on one line only, and the expense would be correspondingly less. Again, if it were established that the line of proscription might be varied from year to year, according to the season, who could draw this line with more perfect impartiality than a central authority at Washington, in connection with the Signal Service Bureau?

"*Southern Cattle for Immediate Slaughter.*

"While the northern States should have an absolute protection against this dangerous southern product, it is utterly unreasonable to interfere with the trade or interests of the south further than is necessary for safety. Store cattle from the south must be absolutely excluded, excepting during the winter, but fat cattle may still be imported for immediate slaughter. It would be otherwise if we were dealing with a contagious disease which spreads its virus in all directions for a certain distance around an infected animal. But the virus of Texas Fever can be fenced in as easily as the animals themselves, and stock on the outer side of the fence will enjoy a happy immunity. To establish a safe traffic in southern fat cattle, therefore, it is only necessary to mark each animal by branding, clipping the tail or otherwise, in a characteristic manner; on starting, to unload them only in special yards, from which all other stock are debarred, and to slaughter them in houses adjoining such yards, within a specified number of days. The cars in which they travel would also require disinfection."

A NEW METHOD FOR THE QUANTITATIVE DETERMINATION OF SUGAR IN BLOOD.

DR. PAVY read a paper some time ago, before the Royal Society, in which he described minutely his new method for the quantitative determination of glucose, and its application to the physiological relations of sugar in the animal system. The accurate results which Dr. Pavy has succeeded in obtaining by means of his new gravimetric process of analysis, and the importance of the subject itself, is such as will tend to advance materially our knowledge, and hence will substantiate and extend the position with regard to the treatment and pathology of Diabetes.

The paper consisted chiefly of a description of the method which the author adopted for accurately ascertaining the amount of sugar in the blood of animals, and formed the prelude to one which was read subsequently in which Dr. Pavy was to give the results obtained by the application of his method as follows:—

1. The natural state of the blood.
2. The comparative state of arterial and venous blood.
3. The spontaneous change ensuing in blood after its removal from the system.

Before describing his own gravimetric system, Dr. Pavy proceeded to criticise Bernard's new volumetric process, which has been described fully in recent issues of the *Comptes Rendus*. This method the author proved to be not only devoid of precision as a quantitative analytical process, but in itself calculated to give rise to fallacious results, inasmuch as keeping the suboxide of copper dissolved by means of organic matter was fundamentally wrong. The entire system was based on errors, and the results were necessarily incorrect; two of these errors the author dealt with somewhat in detail. The first was in the assumption that the volume of trial liquid corresponds in cc. with four-fifths of their weights in grammes of the mixture

of sulphate of soda and blood. In practice it was found that the actual relation between the volume of liquid obtained and the weight of the mixture employed must vary in each individual case, according to the solid matter existing in the particular specimen of blood and the loss of liquid by evaporation during the separation of the coagulum by heat. The other error in Bernard's method arose from the influence which organic matter exerted in preventing the deposition of suboxide. The large addition of potash which is employed in this process—viz., from 20 to 25 cubic centimetres of a concentrated solution to 1 cc. of the copper test—acts upon some one or other of the organic principles left in the liquid obtained from the blood, and prevents the deposition of suboxide of copper.

The author then proceeded to describe his own new gravimetric process, in which he adopts the use of a galvanic battery for effecting the deposition of copper which has been reduced by the sugar in a form to be susceptible of weighing. The details of this method are, shortly, as follows :—

A certain volume of blood—about 20 cc. forms a convenient quantity—is taken for analysis, and first mixed with forty grammes of sulphate of soda; the whole must be subjected to weighing in detail, so that the precise weight of the blood taken may be known. To this mixture, contained in a beaker of about 200 cc. capacity, about 30 cc. of hot concentrated solution of sulphate of soda are added, and the whole contents heated until a coagulum is formed.

Filtration is then performed, and the coagulum thoroughly washed, so that all traces of sugar may be removed. The liquid thus obtained, from having been run and squeezed through muslin, is slightly turbid, and must be boiled again and filtered through paper, to render it perfectly clear. It is now ready for the application of the copper test. Being brought to a state of ebullition, about 10 cc. of the potassic tartrate of copper solution, or sufficient to secure that the test liquid is left in excess, are added, and brisk boiling continued for a minute, but not longer. In this way a reduction of the oxide to the suboxide of copper is effected by the action of the sugar present in the solution.

The liquid is then filtered through a plug of asbestos, or, what is better, glass wool. The suboxide having been collected and washed from excess of the copper test liquid, is next dissolved by a few drops of nitric acid, a small quantity of peroxide of hydrogen having been previously added in order to effect oxidation and consequent ready solution.

The copper present in the liquid is now deposited by the agency of galvanism. The positive pole of the battery is formed by a platinum spiral coil, around which and forming the negative pole is a cylinder of platinum foil; upon this the copper is slowly deposited in a pure metallic form. This operation is continued until the appropriate test shows that the whole of the copper has been thrown down. The period ordinarily required to effect this does not exceed twenty-four hours.

The platinum cylinder is next removed, and instantly plunged first into distilled water, and then into alcohol. After drying in a water oven it is ready for weighing : the difference in the weight of the cylinder before and after the operation gives the amount of copper deposited.

The battery used is a modification of Fuller's mercury bichromate battery and has been selected on account of the constancy of its action.

From the amount of copper deposited, that of the sugar existing in the blood analysed may be accurately calculated. Five atoms of the cupric oxide of the test solution are reduced by one atom of glucose; it follows that 317 parts of copper represent the equivalent of one part of glucose, or the relation stands as one of copper to 0·5678 of glucose. Therefore, to ascertain the amount of sugar, the weight of the copper has to be multiplied by

0·5678. This application of the copper test solution yields a gravimetric instead of a volumetric process of analysis, and one which has no uncertainty belonging to it. There is nothing for the mind to decide, and no opportunity for error of judgment, as may be the case to a slight extent where a gradual fading of colour—as in the volumetric process—has to be watched until the attainment of the proper point of the decoloration has been effected.

The accuracy and reliability of the foregoing process is strongly supported by the uniformity in the results obtained from a large number of experiments. Compared with the results yielded by this gravimetric process, those obtained by Bernard present the greatest discordancy. The figures he gives are invariably too high, and there is no intelligible relation in the differences noticeable—suggesting that there is something radically wrong in taking decoloration without precipitation of suboxide as a means of estimating the amount of sugar. Dr. Pavy supports this assertion by the conclusions derived from a large number of experiments.

LOODIANA DISEASE.

We are informed by the Principal Veterinary Surgeon in Bengal, that what has been designated Loodiana Disease, had again broken out among the horses of the 9th Lancers and Royal Horse Artillery at Sealkote, seven horses having succumbed when his letter was despatched. In the opinion of Mr. F. F. Collins, the disease is of a purely Anthrax character. "I have found, by the annual reports received from veterinary surgeons, that the nature of the soil at all the stations where the disease shows itself is identical—viz., alluvial, with a clayey subsoil. On soils with 'Kunka' (lime), and soils abounding in salts of soda and potash, also good arable loam, the disease never exists. Alluvial soil is common throughout India, and I am endeavouring to get the flooring of all stables made impervious to moisture. The stables at Morar, where the disease used to be very prevalent, I have had floored with rammed 'Kunka,' and no case has occurred there since,—now two years."

Proceedings of Veterinary Medical Societies, etc.

CENTRAL VETERINARY MEDICAL SOCIETY.

At a meeting held on Thursday, November 1st, at 10, Red Lion Square, W.C., at seven p.m., the President for the ensuing session, J. Wortley Axe, Esq., in the chair,

Mr. Gowing, sen., said it would be in the recollection of many present that their late lamented friend, Mr. William Field, jun., had submitted to them a case, illustrated by specimens, showing a morbid condition of the bowels, in detailing which he laid particular stress upon one diagnostic symptom evinced—viz., that one fore-foot was extended and the other brought more under the centre of gravity; also the patient's persistently looking round at his flanks. That symptom was a mere indication of pain: an animal will try to get round and show where the seat of pain is, but cannot till the muscles are put into position to enable him to do so, which cannot be done by both feet naturally placed. This symptom, while indicating abdominal pain, could not guide to a true diagnosis of the case. He was reminded of a

case similar to this, but differing in reference to the seat of disease, occurring in a tradesman's cob, supposed to have Colic. When he saw him there was an anxious look in the eyes, indicative of pain, and the head was turned persistently towards the flanks, the off leg being extended, and the near brought more under the centre of gravity. This position he persisted in. The visible mucous membranes did not present any inflammatory blush, and the action of the heart was not much altered. He was at the time undecided as to the true cause of pain, but did not consider it Colic. There were no tympanitic symptoms, nevertheless he thought it necessary to explore the rectum,—on placing the hand in the off side of which he found a perforation large enough to admit his index finger: then the pain was accounted for. He found, on inquiry, that a person had been in attendance in an early stage, and had used a rather narrow injection pipe for an enema; and to this he ascribed the injury. Here were seen two different causes of disease with similar symptoms. For treatment he cleared the rectum and injected an opium enema, putting the horse on bran diet, with oatmeal and linseed tea, and repeating the enema. The next day the animal was more composed; and the case did well with occasional enemas, the horse being, to his surprise, put to work in ten days, and he lost sight of him for some three years, when he found he was still at work. The chief interest of this case lay in the non-dependence to be placed on the particular symptoms as diagnostic of the organ diseased.

The PRESIDENT thought this case was most forcibly put to show that there were no special symptoms to indicate internal abdominal lesions of the precise organ or part of it involved.

Mr. WRAGG then related a case of Apoplexy, the subject being a cart-gelding six years old, which had been under treatment for three weeks for sore throat with a copious nasal discharge,—which symptoms passed off. His attention was called to him one morning owing to his refusing food. He found him in the stall, standing back from the manger; head down very low; pulse 40, full and strong. On being led out he reeled very much, having little motive power. Being removed to his infirmary, the animal was put in a loose box, and a stimulant given. In the afternoon he fell in the box, but rose again immediately. Hearing him fall again at 6.30, he went in and found him pitched on the head, and the fore-legs doubled under him. He was pulled back into a better position, and found to be comatose, and breathing stertorous; eyes open and fixed; respirations four to the minute; temperature $104\frac{2}{5}$; and to all appearance dying. About 8.30 the pulse became very irregular, numbering 80—55—70 beats in five minutes; from which he inferred heart disease also existed. He remained thus, with occasional movements, till about two in the morning, when the pulse reached 120, becoming very feeble; respirations two per minute; and dying very quietly. In the evening stimulants were given by a pump, and chloral hydrate per rectum. On a *post-mortem* examination being made, eight hours after, the heart was found to be unusually large—weighing 16 lbs. Fatty degeneration had evidently taken place; the valves were also diseased; liver much softened and easily broken down. On opening the cranium, about ℥ij. of serum escaped; the brain was soft and of a yellow colour, the vessels large and very distinct. On dissecting the brain, a clot about the size of a bean was found on the choroid plexus, in the left lateral ventricle. He concluded that, the heart being hypertrophied, the blood was sent into the cerebral vessels with increased force, and the vessels, being weaker, became ruptured. In answer to questions, he said the animal lay still, and he had not observed any disease of the bones; the choroid plexus deposit was sanguineous, and not granular.

Mr. MOORE, SEN., had had a case from the head knocking against the

lintel of the door, which was too low for him. This produced violent fits. He thought in all probability the horse had received an injury to the brain. The heart would soon become involved, and produce the symptoms detailed.

The PRESIDENT said it was a very common occurrence in cardiac disease, when there were fibrinous secretions on the valves, for fragments to be set at liberty in the circulation, and plug up the smaller vessels. Under such conditions softening and ultimate rupture would result. He believed this was a chronic case of such a disease, not as a common one, but as common results of valvular disease.

Mr. J. E. JARVIS produced a portion of a skull, with the following history. The subject was a brown carriage-gelding, some sixteen or more years old. When first submitted to him, he found enlargements of the submaxillary gland and the anterior part of the superior maxillary bone, egg-shaped, and raised in the centre, but not pointing. The third and fourth molars were loose; occasionally, on depressing the head, the off nostril emitted a penetrating and disagreeable-smelling discharge, in quantities of about ℥ij.; it was like white of egg, and would sink in water. The appetite was good, mastication indifferent, and general health good; the head was held on one side while eating; pulse and respiration natural; no œdema of legs; the coat had a staring, unthrifty look. Being a favourite, he was put under treatment; and on being cast, the third and fourth teeth were extracted, the fifth and sixth being moderately firm. A hole being made externally into the cavity so formed, daily injections were made of warm water and cupri sulph. and creosote, also carbolic acid diluted.—Tonics, and the diet restricted to steamed oats and mashes, hay and chaff being well scalded. After a fortnight's treatment, as the result would probably be unfavourable, the horse was destroyed. In the skull shown the near side was healthy, the superior turbinated bones were filled with semi-fluid pus, and the fifth and sixth molars had fallen out; the palate bone seemed all eaten away; the parts had discharged very much, and if not closely examined it might have passed for Glanders.

Mr. CLARKE said he had but two or three days since sent a report and a specimen of a similar case to the College for the assistance of the students. The animal had been under his notice three years; the smell of the discharge from the nostrils became unbearable. When shown him by the omnibus men he felt it ought not to work; although, if used, he would give the driver a guarantee that the disease was not Glanders. A few weeks ago it was discharging at the eye, and pointing so much that he had a view to trephine; but making experimentally a crucial incision and piercing it with a gimlet, there passed out a quantity of pus, so he did not pursue it any farther.

The SECRETARY said that, while in Edinburgh, he saw a horse under the care of Professor Williams that was the subject of a diseased tooth. The Professor had adopted a rather forcible means of extraction: he trephined in the zygomatic ridge, and introducing a chisel, punched it out. From this, as in other cases, he expected the best results. Here the breath was exceedingly sweet. At the time it struck him, as it would probably the majority of them, that the remedy must be more powerful than the result would lead them to anticipate, and that the horse would become a quidder.

Mr. CLARKE observed that with the loss of two or three molars such a horse would become a bad quidder, and unable to fill the stomach.

Mr. GOWING, SEN., said teeth diseases were not at all uncommon, particularly in old horses; absorption of the fang frequently gave rise to further disturbance, the teeth became elongated, and there was a loss of attrition. In one particular case with a neighbour's horse, there was softening of the bones, and nasal discharge. The owner imagined it was a case of Glanders, to which he dissented, and the College opinion was to the same effect. He

was afterwards enabled to examine the parts which were destroyed by disease, and had several loose molars in which there was structural change. Tooth extraction was attended with some difficulty, and he had paid a good deal of attention to the matter, and invented certain instruments for the purpose, and in some cases had been successful where, had he not had these instruments at hand, he might have failed; but he regretted they were not suitable to every purpose connected with tooth disease. Those acquainted with the anatomy of the teeth, their depth in their sockets, and the alveolar processes, knew that to turn them out was likely to cause fracture of the jaw. The forceps had a long leverage and screw action, biting securely on the tooth, when manual power would be sufficient to wrench them out: but some it was impossible to extract with an ordinary lever. The process was to tap it underneath and raise it from its bed—when, the crown of it being above the level of the others, it was fractured off, and so reduced in length by his chisel; then with the lateral or upright action the tooth would come out. In one case he removed two very readily, but there was one at the posterior part much elongated on account of losing its attrition (he quidded a great deal, and was much emaciated); here his instrument would not bear upon it, so he decided to punch it out, and casting the animal, adjusted the instrument, percussing with a hammer till he had displaced it. Then came the gist of the operation: his assistant saying it was out, was directed to insert his hand in the mouth and remove it, but failed to find it; the animal, giving a gulp, had swallowed it, and now lay passive and seemingly nearly dead; he was freed from the hobbles and forced to rise; the respiration was very hurried, but he gave a sudden cough and the tooth flew out: the animal recovered, and he obtained some credit for the operation.

The PRESIDENT considered the specimen an instance of Sarcoma, now a common affection, the growths being generally gradual and unnoticed. He believed this was of long standing, and not noticed till the increasing odour made it apparent. These sarcomatous tumours grow rapidly at times, and when only subcutaneous, develop to the extent of several pounds in a few weeks: and, in answer to questions, they generally originated in the bone itself—the periosteum, or lining membrane—so that to account for their appearing only on one side was very difficult. What was known of them pointed to external violence as an exciting cause, and from the peculiar functions of the teeth for grinding, might account for their being sometimes exposed to accidental concussive influence: he had no data for supposing there were hereditary causes.

The SECRETARY might instance another cause, which was suggested by a case brought to the notice of the early Fellows of the Society, in which both lower jaws were affected owing to misplaced teeth, which, instead of being normal in position, sloped a little on one side, and gave the appearance of petrous tumours; he laid them open, and proved that unmasticated grain had forced its way between the molars, making large cavities at their sockets, and forming a lateral osseal tumefaction. It led to starvation.

Votes of thanks being accorded those Fellows who had furnished topics for discussion, Mr. J. H. Hancock, of 26, East India Road, was proposed as a Fellow, and the meeting adjourned. Present, fifteen fellows and five visitors.

JAMES ROWE, JUN., *Hon. Sec.*

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE fifty-third quarterly meeting of the Association was held at the Medical Institute, Hope Street, on Friday evening, November 9th, 1877, Mr. George Morgan, Vice-President, in the chair.

There were present—Messrs. Heyes, C. W. Elam, Moore, Hutcheon, W. Leather, Hopkin, Greaves, W. A. Taylor, T. Taylor, Storrar, Storrar, jun., Locke, Whittle, Rothwell, and the Secretary.

Letters and telegrams of apology were received from the President, Messrs. W. A. Cartwright, E. Faulkner, J. Welsby, and Darwell. The minutes of the preceding meeting were read and confirmed. The Treasurer's statement of accounts for the past year was read and approved.

Mr. THOMAS GREAVES, Manchester, read a paper on "Germs: the part they play in the Production of some Diseases; and Disinfectants: the part they play in Preventing and Modifying Disease."

With reference to the action of disinfectants, Mr. T. TAYLOR spoke of the value of chlorine gas in outbreaks of malignant Influenza, which were so prevalent in Manchester about two years ago. Not only had he found it of service when the outbreak at one very large establishment was on the decrease, and, as is usually the case, the attacks were of a milder character, but he had two instances where, immediately after the outbreak, the animals attacked were isolated and the stables disinfected, and no further cases occurred in them.

Mr. REYNOLDS said that through the kindness of Mr. Taylor he had an opportunity of seeing some cases in Manchester, and the disease having appeared in stables under his supervision during the current year, he adopted Mr. Taylor's suggestion of disinfecting with chlorine; but in his hands the practice failed entirely to arrest fresh outbreaks, or mitigate the severity of subsequent attacks.

Mr. HUTCHEON thought the Influenza could not be attributed to the influence of germs in the ordinary acceptation, as the outbreaks were most irregular in their occurrence. It appeared to be due rather to atmospheric influences: on some days there would be a number of fresh cases, followed by days when there would be very few or none.

Mr. STORRAR considered the germ theory was amply illustrated by the outbreak of Rinderpest, and no doubt in most other epizoötic diseases; but it would require much observation, study, and comparison of ideas and results, before we could determine the laws which regulate the development, propagation, and death of disease-producing germs. As to the divergence of result obtained by Mr. Taylor and Mr. Reynolds, he thought such variation was constantly met with, and applied not only to means adopted for the prevention of disease, but also to the use of curative measures.

Mr. LEATHER said he had employed disinfection by chlorine gas in an outbreak of Glanders and Farcy which had occurred in a newly-built stable, but had obtained no beneficial result.

Mr. HOPKIN believed Glanders and Farcy were propagated by germs, as also were many, if not all, blood diseases; but in respect to the recent outbreak of Influenza, he could not think it was due to germs. He had tried the employment of hyposulphite of soda as a preventive to glanderous poison, but up to the present time all his proofs were negative. He hoped to carry out an experiment to prove, positively, that when the system of a healthy horse had been thoroughly saturated with hyposulphite, he would be impervious to Glander poison.

Mr. W. A. TAYLOR suggested that members should be induced to bring before this and kindred associations microscopical preparations of morbid animal products, and advocated that members should record the action and effects of the various drugs used in daily practice. He thought the divergence in result obtained by Mr. Taylor and Mr. Reynolds was to be explained by the circumstance that whilst the air of the stable only was disinfected, the influence operating in the generation of the disease might exist in the circumambient air, which of course would in a short time be carried into the stable.

He had given 6 lb. of soda hyposulphate daily for three weeks in a case of Farcy, which progressed satisfactorily; but he did not on that account look on the drug as a panacea for the disease. Being a fact, it was one unit towards the elucidation of the question.

Mr. C. W. ELAM thought that experiments to prove whether or not the hyposulphite was a preventive of Glanders should be thoroughly tried, but only under the most complete isolation. He believed Glanders and Farcy could be grown as easily as mushrooms by indifference to feeding and overwork, and without positive contact with animals exhibiting the ordinary symptoms of Glanders; for he had no doubt many horses apparently free from the disease were capable of infecting sound young horses whenever the latter were attacked with Catarrh or Influenza.

The discussion among the members continued, and the general opinion expressed was that Glanders did not originate spontaneously, and that most cases arose in stables where the disease had previously existed, and the germs of the disease had been generated.

Mr. MOORE instanced an outbreak of Eczema where a large herd had been attacked four times in the space of fourteen months.

The discussion on Mr. Greaves' paper was adjourned until the next meeting.

The following gentlemen were nominated for membership :—Mr. Augustus B. Wren, Birkenhead; Mr. Darwell, sen., Northwich; Mr. Darwell, jun., Northwich; Mr. Menzies, St. Helens.

Votes of thanks to Mr. Greaves, Mr. Morgan, and the retiring officers of the Association were then passed.

The following officers were elected for the ensuing year :—Mr. T. G. Procter, President; Messrs. Woods, Heyes, and Storrar, Vice-Presidents; Mr. C. W. Elam, Treasurer; Mr. Hutcheon, Secretary.

RICHARD S. REYNOLDS, *Hon. Sec.*

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Pathology of Tetanus and Hydrophobia.

THERE was a large attendance at the meeting of this Society on December 11th; Dr. C. West, president, in the chair.

Dr. JOSEPH COATS read a paper on the "Pathology of Tetanus and Hydrophobia," of which the following is an abstract :—The paper first described the lesions met with. In Tetanus the central nervous system shows hyperæmia and certain appearances in the neighbourhood of the bloodvessels. In the cord and medulla oblongata, pons, corpora quadrigemina, and corpus striatum, but chiefly in the two first named, there is a granular material around the vessels, probably an exudation. In the medulla oblongata it is noted that a longitudinal vessel in the posterior parts is particularly affected, and that here, as well as in other parts, there are occasional hæmorrhages. In the convolutions there is an exudation of a yellow fluid outside the smallest vessels, the medium-sized ones (which are those affected in the cord and medulla oblongata) having mostly escaped. In Hydrophobia there is, in the central nervous system, an aggregation of leucocytes around the bloodvessels. In the cord, medulla oblongata, pons, and corpora quadrigemina, it is the medium-sized vessels which are so affected; in the convolutions it is those of small or capillary size. The salivary glands are infiltrated with leucocytes, which have special relations with the bloodvessels. The mucous glands of the larynx are similarly affected, though much less intensely. The kidneys are hyperæmic, with aggregation of white blood-corpuscles within them. The pathology of these two diseases was then discussed, and it was pointed out that

there is a great similarity in the distribution of the lesions in the central nervous system, as well as a certain analogy in the kind of lesion. The special distribution of the lesion was compared to the localisation of the tubercles in tubercular Meningitis, and ascribed to physiological and anatomical peculiarities of the circulation. Attention was also drawn to the fact that in Hydrophobia the lesions are not confined to the central nervous system, while in Tetanus facts are deficient in this regard, but a parenchymatous affection of the liver, kidneys, etc., is asserted by one author. The special localisation of the symptoms, in both diseases, in the tongue, throat, and neck, was associated with the special prevalence of the lesions in the medulla oblongata, and especially in the neighbourhood of the nuclei of the nerves, in the floor of the fourth ventricle, etc.,—it being pointed out that the principal nutrient vessel of the medulla is specially related to these nuclei of grey matter. It was concluded that in Tetanus and Hydrophobia we seem to have two different poisons, each of which, circulating in the blood, attacks the central nervous system. These agents irritate the nervous system, but as they are different in nature, so the kind of irritation they produce is different. There is, however, a remarkable similarity in the localities indicated by them, and these seem to be specially the spinal cord, medulla oblongata, and corpora quadrigemina ; and, to a lesser degree, the cerebral convolutions. The irritation seems to centre in the medulla oblongata, and in a particular region of it—this localisation being probably determined by the anatomical and physiological relations of the nutrient vessels. The high temperature met with in Hydrophobia, and sometimes in Tetanus, was regarded as not inconsistent with these views.

Dr. ALTHAUS said that they were greatly indebted to Dr. Coats for his paper, and for the valuable series of microscopical preparations accompanying it. The symptoms of Tetanus pointed so much to lesion in the medulla oblongata, that it was interesting to hear that Dr. Coats had found lesions there although Dr. Lockhart Clarke had failed to detect them. He inquired whether Dr. Coats had examined the cervical sympathetic ganglia in Hydrophobia, for in that disease many of the symptoms resembled the phenomena produced by section of the sympathetic ; and he believed that some older observers had described changes in the second ganglion. He could not admit that the changes described by Dr. Coats were so characteristic as he seemed to think, for similar changes are met with in certain inflammatory affections—*e.g.*, acute ascending spinal Paralysis ; nor without more clinical evidence could the view be accepted that Tetanus depends on a special poison, whereas in Hydrophobia there can be no doubt as to the existence of a poison. This was proved especially by inoculation experiments, of which he had seen many when a student at Berlin, twenty-five years ago. At that time there was an epizoötic of Rabies in North Germany ; and Professor Hertwig performed many inoculations, which succeeded in about 50 per cent. of the cases, and many which did not succeed on the first did on subsequent and repeated inoculations, just as occurs often in Vaccinia. Tetanus, on the other hand, has never been transmitted from one individual to another. It is true that epidemics of Tetanus have occurred, but in such cases the same cause has affected several individuals—*e.g.*, changes of temperature. On one night after the battle of Magenta as many as eighty cases of Tetanus arose among the wounded. In fact, the difference between Tetanus and Hydrophobia was enormous, and they had but very little in common. Trismus never occurs in Hydrophobia, the clonic intermittent convulsions of which contrasted with the persistent tonic spasm of Tetanus.

Dr. DICKINSON said that, Dr. Coats having kindly shown him his specimens, he could testify to the appearances described in the paper—especially the exudation of leucocytes ; and it seemed to him that the first noticeable

change in the nervous centres of Tetanus and Hydrophobia was a change in the inter-relations of bloodvessel and nerve. This was true of many nervous diseases—such as Chorea, Diabetes, etc. He himself had observed masses of exudation around the bloodvessels in the spinal cord of Tetanus; but he had seen the same thing in many other nervous disorders, so that he doubted whether it were possible by the microscope alone to discriminate between these various affections. The theory of the blood origin of Tetanus was advocated many years ago by Dr. J. A. Wilson, consulting physician to St. George's Hospital; and he (the speaker) had always thought there was much in favour of that view. There could be no doubt that Hydrophobia was produced by inoculation of a virus; and that a blood-poison was the source of Traumatic Tetanus seemed almost as certain, since it was invariably accompanied by an open wound. Added to which was a sort of incubation period in the interval that occurred almost constantly between the infliction of the wound and the development of symptoms. On many grounds, then, it seemed that Tetanus should be regarded primarily as a blood-poison. Lastly, Dr. Dickinson said that the anatomical changes described in these diseases must only be regarded as a step in the series of pathological processes making up the disease.

Dr. GOWERS said that they must feel obliged to Dr. Coats for his preparations and fresh facts, for whatever view might be held as to his conclusions, he had brought forward important additions to our knowledge of these diseases. Especially was this the case with regard to his researches upon the affections of other organs than the nervous centres—*e.g.*, the parotid gland and kidney in Hydrophobia: the latter might be compared with the early affection of the kidney in Scarlet Fever, described by Mr. Klein. Another point of value in Dr. Coats's paper was the identity of the lesion in the nervous centres in the dog and man in Hydrophobia. The observations detailed favoured the view that there are lesions perfectly distinctive of Hydrophobia from Tetanus. Dr. Gowers had now examined the nerve-centres in six cases of Hydrophobia, and in five of these the changes were so considerable and so similar as to appear to him quite characteristic, for he believed that no lesions in other diseases resembled them in both distribution and character. In each of the five cases there was, in the medulla oblongata, not only a dense massing of leucocytes around the bloodvessels, but an infiltration of the tissues with them, forming in places groups of such a closely-packed character as to warrant the term "miliary abscess" being applied to them. In fact, it seemed as if the process had only to advance a step further in order for the medulla to be riddled with foci of suppuration. The changes were far less extensive in the spinal cord. Unlike Dr. Coats, he had found the exudation of leucocytes to occur also around very small vessels—sometimes capillaries,—where they were not so readily recognised, because such small vessels are not limited by perivascular sheaths, and the cells, therefore, escape into the adjacent tissue. In the cases of Tetanus that he had examined, he had found changes similar to that described by Dr. Coats; but the changes were certainly not more intense in the medulla than in the cord; he rather thought they predominated in the latter. But, regarding the nature of the changes in Tetanus, which Dr. Coats had pointed out were different from those of Hydrophobia, the effect of severe congestion must be taken into account. Such congestion of all the organs of the body, from paroxysms interfering with respiration, would be more intense in Tetanus than in Hydrophobia; and it was probably for this reason that the extravasations of blood were more marked in Tetanus, and might assist in producing the accumulations of granular matter observed around the bloodvessels in that disease. Moreover, the effects of mechanical congestion would be greater on organs which were already in a condition of increased functional

activity, and therefore fully supplied with blood. As to the limitation of the granular material to the vicinity of the vessels, it must be borne in mind that the spaces around the vessels were the only spaces where granular material could aggregate ; and this localisation of the granular material could hardly, therefore, be taken as evidence that the cause of Tetanus acted through the vessels. In fine, Dr. Gowers could not help thinking that the lesions of the nerve-centres in the two diseases were in harmony with the current theories of their nature. Thus in Tetanus it was generally held that the symptoms were due to the effect produced on the central nervous system by an irritated or inflamed nerve. In many cases an ascending inflammation had been traced in the nerve, and this was believed to excite the disease, although it was quite possible that some poison, such as that produced by changes in temperature, and analogous to the Rheumatic poison, might predispose a subject to the development of Tetanus, or even, acting alone, might induce the disease (as in Idiopathic or Rheumatic Tetanus). Hydrophobia, on the other hand, was regarded as the result of a special poison which, circulating in the blood, passed from the vessels, irritated the nerve-centres, and produced the profound vascular lesions met with. In Tetanus, the comparatively slighter vascular lesions were more in harmony with stimulation by a peripheral irritation, than with the notion of a poison circulating in the blood.

Dr. T. C. TURNER remarked that aggregations of leucocytes, even to the extent of the "miliary abscess," might be produced in a very short time, even after death. For instance, he had found on examination of the stomach, in three cases of sudden death, in subjects otherwise healthy, a large collection of leucocytes between and around the gastric glands. Such a change was no doubt due to congestion, sufficient to alter the vessel-wall and allow of the exudation of leucocytes. In one of the cases—a healthy child, fourteen years of age, killed by injury to the head—there was also a small hæmorrhagic infarction in one lung, which he presumed was probably produced in the same way. On examining the nervous centres, kidney, and liver, from a case of Hydrophobia, he had found in all these parts an appearance of exudation of leucocytes around all the vessels, and in some parts also infiltrating the tissues. The appearance was most marked in the grey matter of the cord, and he noticed that in the dorsal region the white matter was softened. In the cervical part there had been distinct hæmorrhages from one or two of the larger vessels ; and a good deal of granular matter—probably the result of hæmorrhage—also existed. There was nothing particular in the brain ; but in the kidneys, between the tubules, and in the liver, especially in the portal canals, there was a great increase in leucocytes, with clear matter between them. In another case he had found, in addition to the leucocytic infiltration in the spinal cord, a varying amount of exudation material in more or less defined masses—similar, in fact, to that recently described by Sir W. Gull and Dr. Sutton.

Sir JOSEPH FAYRER said that he had been profoundly interested and instructed by what he had heard, but at the same time much disappointed. It was true that he had heard much he had not heard before, but he had hoped also to have heard something about the diseases themselves,—as to their phenomena, and what could be done to cure them. At present they were almost incurable ; one of them, at least, was quite incurable. He had seen much of Tetanus in the East, where it prevailed to a great extent endemically; but he would not trespass on the time of the Society in detailing his experience. He would only say that, in his opinion, Idiopathic Tetanus was very amenable to treatment, and possibly Traumatic Tetanus also ; and he hoped that subsequent speakers, more able than himself, would enlighten them as to the nature and treatment of the disease.

Dr. BUZZARD, referring to Dr. Coats's observation that special arteries of

the nervous centres were most affected, said that this selective property of the hydrophobic poison was not more difficult to explain than the affinity of certain mineral poisons for particular tissues or organs. Thus arsenic, no matter in what way it was administered, acted especially on the skin and alimentary canal, mercury on the salivary glands, lead on the muscular structures and on peripheral nerves, and especially in particular regions of these. All this reminded them of Virchow's doctrine of special affinities; and the question arose whether such might not possibly be due to some chemical constitution of the affected regions by virtue of which these parts more than others attracted from the blood substances for which they had an affinity. On this ground, and also in view of the fact pointed out by Dr. Althaus that the anatomical appearances were not peculiar to Hydrophobia, he would ask whether all that could be gained from microscopical examination had not been attained, and whether it was not now time for the chemical analyst to step in and explain facts beyond the power of the microscope to fathom?

The usual hour for adjournment having now arrived, the PRESIDENT, remarking upon the importance of the subject, suggested that it might be worth while to adjourn the discussion to the next meeting, when they might have the advantage of hearing the views of Sir Joseph Fayrer and Mr. Curling (who had risen to speak) more at length.

Mr. CURLING suggested that the meeting might be prolonged for another half-hour, to allow of the discussion being completed. This course being agreed to, he proceeded to say that he had listened with much interest to Dr. Coats's paper upon the appearances found in these diseases. There was one point which always struck him in considering the changes described in Tetanus—changes upon which Drs. L. Clarke and Dickinson were in agreement. It was, that the clinical history of these cases did not bear out the changes found; for these latter involved so much organic change in the nerve-centres as would, it might be supposed, have produced paralysis. But he had never seen a single case of Tetanus in which paralysis occurred, even towards the close of life. He could hardly agree with Dr. Coats that the most frequent cause of death in Tetanus was syncope. As a rule, the patients died from arrest of respiration through spasm of the glottis. The period of incubation was very different in the two diseases. In Tetanus it was about from ten to fourteen days. In Hydrophobia it varied from six weeks to as many months or even years; and it was an interesting question as to what had become of the virus during all the time that elapsed from the infliction of the wound to the development of symptoms. He was inclined to agree with Dr. Althaus as to the distinction between Tetanus and Hydrophobia. There was no doubt the latter was a blood disease; but it did not seem that the view of Tetanus being a blood disorder was borne out by treatment, for in Tetanus, if the case were taken early enough, and the nerve proceeding from the wound were divided, the disease might be arrested. Of course, the wound might be so situated that it was impossible to do this, or at any rate without the sacrifice of a limb; but there were many cases in which it might be done with safety, often with the best results.

The PRESIDENT hoped that Sir Joseph Fayrer would favour them with some other remarks.

Sir JOSEPH FAYRER said he did not wish to enter into the whole subject; he might say, however, that he could fully confirm Mr. Curling's statement as to the manner in which by section of the nerve proceeding from the wound Tetanus might be arrested. He instanced a case dependent on a wound in the palm, in which the symptoms were well marked, where division of the median nerve at the bend of the elbow was perfectly successful.

Mr. HOWSE was interested in finding that Dr. Coats believed Tetanus to be due to a poison, for from a clinical point of view he had arrived at the

same conclusion. For the last seven years he had rigidly carried out in his wards Mr. Lister's antiseptic principles, and in spite of that he had had about five cases of Tetanus during this time. In all the wounds were remarkably similar—generally occurring when the patient had been dragged along the streets, and had dirt ground into the tissues to such a depth that it could not be removed; and such cases presented other symptoms more obviously due to blood-poisoning, so that he believed that Tetanus was dependent on a blood-poison analogous to septic matter. One case was that of a lad who fell into a midden heap, and sustained a compound fracture of the leg, and the wound was filled with dirt, and was altogether in a most filthy state. An attempt was made to save the limb, but tetanic symptoms set in. Mr. Howse amputated through the knee-joint; and although the Tetanus subsided, the boy died from Pyæmia. Another case was that of a man who was dragged along for a hundred yards by a train, and received a large lacerated wound involving the deltoid, with much dirt scraped deeply into it. Here in four or five days Erysipelatoid Inflammation set in, and two or three days later well-marked Tetanus. In fact, those cases were most prone to Tetanus where foul material, such as London mud, was deeply ground into the tissues; and this, he thought, was strong evidence as to Tetanus being due to a local poison. He was aware that Idiopathic Tetanus was instanced as an argument against this view, but he could not help thinking it to be perfectly distinct from Traumatic Tetanus; for, of two cases of the idiopathic affection he had been called to see, one was cured by iodide of potassium, and the other by the green iodide of mercury. Whilst, as to cases of the traumatic variety, which had been cured by section of nerves, it might well be that the connective tissue of the nerve itself or its bloodvessels was the medium for the transference of the poison in such cases.

Dr. FITZPATRICK remarked that Tetanus was not uncommon among horses, and many veterinary surgeons had successfully treated it by conia. He himself lost a horse from this disease last year. It died from spasm of the respiratory muscles.

Dr. GREENFIELD said that it was important to distinguish between facts of pathological anatomy and the pathology of a disease. The changes described by Dr. Coats had to a certain extent been recorded by other observers, but those observed in the cerebral convolutions were new. He must, however, venture to protest against our views of pathology being solely grounded upon what is seen with the eye; and he did not think that as yet the changes in the nervous centres in Hydrophobia and Tetanus—changes which, so far as his own observation went, were extremely variable—afforded any proof that they were any other than the results of irritation. Similar changes had been found in Chorea and Scarlet Fever; and it was open to question how far some of them might not be the result of the same conditions—*e.g.*, high temperature, common to some cases of these affections—rather than essential to and characteristic of one disease in particular. Hence too much stress should not be laid upon their occurrence as explanatory of the true pathology of these diseases.

Dr. JOHN HARLEY mentioned that in his experiments on the action of aconite upon the dog, he had been able to produce all the symptoms of Hydrophobia, and had attributed them to extensive hyperæmia of the spinal cord.

Mr. JOHN WOOD, seeing that Dr. Coats had extended his observations upon the changes in Hydrophobia to other organs than those of the nervous system, would like to ask whether he had examined the scar of the bite in such cases. Such examination might throw light upon the incubation of the disease, for, if anywhere, the virus was most likely to be met with in the cicatrix.

The PRESIDENT, in closing the discussion, called the attention of the Society, and especially of surgeons, to a large field of observation yet unexplored—namely, the Tetanus of new-born children, so prevalent in some lying-in hospitals, as the Foundling at Paris. It was very prevalent at Dublin when he studied there, many years ago, but had been practically banished by improved ventilation. Such cases presented all the features characteristic of Tetanus in the adult, and their study might throw much light upon the nature and causation of the disease. He had only met with one case since that time, and that was in an infant born under most favourable surroundings. There was one other remark which he ventured to make, although with diffidence. Since he had had the honour of presiding over that Society, he had been much struck with the growing tendency to ignore the results of clinical observation, and to look too narrowly into the changes observed in organs by the microscope after death. He could not forget that in Sydenham's day morbid anatomy was almost unknown, and yet the knowledge of disease was great, for it was derived from the careful study of the phenomena presented in the course of the disease; and he feared that the tendency nowadays was to lay too much stress upon what one appeared to see with the eye, and so to study the one as not to see the other and more important aspect; for surely more was to be gained in the treatment of disease from studying it when in progress, than when its results were completed and it was beyond interference. Nor did he find that these advances in the direction of *post-mortem* observation had done very much to put a stop to wild theories—theories as extravagant as those which prevailed a century or more ago. Then humoral pathology prevailed, and men talked of "fermentation of the blood," and the like; but now precisely the same class of explanations were started, with this exception—that in those days such explanations did not affect to be clothed in the garb of scientific knowledge. It seemed to him that there was a risk, in the presence of all the increase of improved scientific instruments, that we might be led away from the essential features of disease, and the progress of medicine be retarded. In searching for the causes of disease in this one-sided manner, we were too apt to lose sight of our special function as the curers of disease.

Dr. COATS, in reply, said that some misapprehensions which had arisen were doubtless due to the fact that the paper had only been read in part. He by no means asserted that the lesions described were the essence of either disease, but were only the evidence of irritation—probably a poison acting on the bloodvessels; and as these evidences differed, so he inferred the causes of irritation differed. He recognised an absolute difference between the two diseases, holding only that both might be due to the action of some morbid poison. He thought the term "miliary abscess," applied by Dr. Gowers to large collections of leucocytes, not a happy one, for an abscess implied pus, and pus was a fluid; whereas in many conditions (*e.g.*, cirrhosis of the liver), there was abundant infiltration of leucocytes, but not the formation of pus. The collection of small cells, like leucocytes, in the gastric mucous membrane, was only an exaggeration of the normal lymphatic tissue of that organ.

Dr. TURNER said that the infiltration he referred to was of large collections of cells, which were much larger than the normal lymphatic tissue.

Dr. COATS said there was no destruction of nervous tissue, and therefore he would not expect to have any paralytic symptoms. Referring to the incubation of Hydrophobia, he said it was not more wonderful than what occurred in acute miliary Tuberculosis, from the infection of a caseous focus which might have persisted for an indefinite period. He had examined the cicatrix in Hydrophobia, and in one case found evidences of irritation, although a long time had elapsed since the wound had been inflicted;

but he had found no specific material in the scar. Lastly, he said that he had only approached the subject from the side of morbid anatomy and physiology.

The Society then adjourned.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE usual fortnightly meeting of this Association was held on October 25th, at the Veterinary College, Prof. Wm. Osler in the chair.

The following new members were balloted for and elected:—Noah Cressy, M.D., Amherst, Mass.; P. Cummings, Quebec: Matthias Smith Brown, Montreal; Wm. Jackeman, Boston, Mass.; Mr. Harris, Ottawa; Mr. White, Montreal; Geo. H. Parkinson, Bridgeport, Conn.; H. J. McMartin, Montreal.

Mr. C. C. LYFORD, V.S., Roscoe, Ill., read a very interesting paper on "Inflammation of the Lymphatics," illustrating his remarks by cases, which led to an animated discussion on the causes and true pathology of these cases.

Professor CRESSY objected to the name made use of by veterinarians to indicate this disease. He was of opinion that the inflammation of the lymphatics was merely a consequence of some other pathological condition.

The CHAIRMAN ageed with Dr. Cressy that there was room for improvement in veterinary nomenclature.

The PRESIDENT agreed with the two gentlemen as to the defective state of our nomenclature, but thought "Lymphatitis" was as good a name as any other, for although the disease was a consequence of errors in diet, and probably mal-assimilation, the lymphatic glands being the principal seat of the inflammatory action, it could be as readily recognised under the old name as under any new or more technical one.

Dr. F. W. MCLELLAN, of Bridgeport, Conn., next read an instructive case of "Rupture of the Cæcum," in which he minutely described the history of the case. The horse had been losing condition for some time previous, and the owner administered a large dose of oil of turpentine in milk, which set up inflammation of the diseased portion of the intestine, and ended in the final perforation of the bowel and the escape of the contents, setting up Peritonitis. The *post-mortem* examination, which was conducted by Prof. Osler, revealed the fact that an ulcerated condition of the cæcum near its blind end had existed for some time, and that during the recent enteric attack set up by the turpentine, the attenuated coats of the bowel gave way. The specimen was exhibited and carefully examined by all present. An animated discussion followed on the causes and symptoms of these cases.

The next fortnightly meeting was held in the lecture-room of the College, Union Avenue, on November 8th. After the usual routine of business, the PRESIDENT referred to the large and handsome addition that had been recently made to the library,—some sixty volumes, comprising many of the standard works on anatomy, physiology, pathology, surgery, etc. Votes of thanks were then tendered to the President, Professor Osler, and Mr. C. J. Alloway, for their valuable contributions of books. Mr. J. A. COUTURE was then called upon to read his communication of a case of extensive sloughing of the skin and muscles of a horse's thigh, which was followed by an animated discussion. The event of the evening was the reading of a paper on "The so-called Hog Cholera, or Typhoid Fever in Pigs," by Professor WM. OSLER, Vice-President of the Association. The lecturer in the course of his remarks dwelt upon the great importance of the subject under discussion to the agriculturist, as stock raisers in the United States alone suffered a loss of $20,000,000 annually, principally in

Ohio and Illinois ; neither was the disease unknown in this country, as during the past season a well-known agriculturist near Quebec had had his herds decimated by its ravages. The doctor also spoke of a number of experiments conducted by him at the Veterinary College here, in which the disease was produced in five subjects from different methods of inoculation, and minutely described the symptoms and *post-mortem* lesions in each. He showed the infectious nature of the disease, and urged the importance of strict enforcement of sanitary laws. Professor Osler intimated, however, that the paper was only preliminary ; he had made extensive examinations of all the cases, and of a large number of *post-mortem* examinations made at Quebec specimens were preserved in the College museum, and drawings of the *post-mortem* appearances were being prepared (a beautiful specimen of which was exhibited); and it was intended that an extensive paper on the subject should shortly be presented to the profession. The PRESIDENT remarked that this disease was discovered in two pigs lately imported, and fortunately detained in the quarantine. Professor CUESAY also gave his experience in this direction, which, being somewhat extensive, was listened to with considerable interest.

Obituary.

WE have received intelligence of the death of an old and esteemed member of the profession, William Cockburn, of Glasgow. Mr. Cockburn graduated so long ago as 1835, and was for several years a member of the Examining Board of the Royal College of Veterinary Surgeons. He was universally respected, and had a large and lucrative practice in Glasgow. At his death he was seventy-four years of age.

Army Veterinary Department.

Gazette, November 23.

ROYAL ARTILLERY, Veterinary-Surg. B. A. W. Powell, from the Veterinary Department, to be Veterinary-Surg., vice J. E. Elphick, who exchanges.

VETERINARY DEPARTMENT.—Veterinary-Surg. J. E. Elphick, from the Royal Artillery, to be Veterinary-Surg., vice B. A. W. Powell, who exchanges.

Gazette, November 29.

YEOMANRY CAVALRY, SHROPSHIRE.—H. Barnes, Gent., to be Veterinary-Surg.

Gazette, December 7.

ROYAL ARTILLERY.—The under-mentioned Veterinary-Surgs. on probation to be Veterinary-Surgs. :—Daniel Chambers Pallin, vice E. T. Cheeseman, transferred to the 5th Dragoon Guards ; Joshua Arthur Nunn, vice J. Tatam, promoted Staff Veterinary Surgeon.

In India, Veterinary-Surg. S. R. Sartin, Royal Artillery, has leave from October 8, 1877, to April 7, 1878, on recommendation of a medical board.

Veterinary-Surg. J. P. Adams, to proceed from Mooltan to Allahabad, to take over veterinary charge of horses of E Battery, 4th Brigade, Royal Artillery.

The following movements of Veterinary-Surgs. of 5th Brigade, under orders to proceed to England, are ordered :—

Veterinary-Surg. B. L. Glover, 5th Brigade, to join E battery on its arrival at Lucknow.

Veterinary-Surg. C. Phillips, 5th Brigade, to proceed from Barrackpore to Allahabad.

Notes and News.

The Diagnosis of Pregnancy.—According to a correspondent of the *Milch Zeitung*, says the *Farmer*, the following is a trustworthy and simple means of determining whether a cow is in calf. Some of its fresh-drawn milk should be allowed to fall, drop by drop, into a glass containing clear spring-water. If the drops spread out and get mixed with the water, the cow is not pregnant ; if, on the other hand, they quickly sink whole to the bottom, she may safely be declared in calf. In the case of young cows, whose first pregnancy is in question, a little of the fluid in the udder should be milked upon the palm of the hand. If the fluid be tenacious, viscid, and gummy, it is a sign of pregnancy, and the greater its tenacity the further has pregnancy advanced : if, however, it be thin and watery, the animal is not in calf. The writer does not pretend to offer any explanation of why these things should be ; he simply avers that they are facts, which have never played him false in a lengthened experience, and invites his brother dairymen to test them for themselves.

Progressive Achroid in the Horse.—A well-marked instance of those curious abnormal changes of colour in the horse's coat which occasionally come under notice, is recorded by Herr Albrecht in a recent number of the *Wochenschrift für Thierheilkunde und Viehzucht*. Up to the end of his fourth year the horse in question had been an ordinary brown. At the beginning of the fifth year, round or oval white patches about six centimetres in diameter appeared, first upon the head, and then on the throat and neck. At the age of four and a half years, they extended to the back, ribs, and hind-quarters, and soon spread to the belly and the legs. By this time the brown horse had become a piebald. Between the fifth and sixth years, the white patches gradually spread and blended into each other, till ultimately every trace of brown had disappeared, the horse being grey all over, except as to its mane and tail, which remained black, as before. The change of colour in this case appears to have been accompanied by considerable constitutional disturbance. So long as it proceeded the horse was subject to frequent colds, lost all appetite and spirit, and got into very poor condition ; but directly the new order of things was finally established, all these adverse symptoms disappeared, and the animal recovered his original character as a hard-working, good conditioned, and high-spirited beast.

The Turkish Army.—From an instructive article in the *Times* on the Ottoman army we extract the following notes, which may be of interest to veterinary surgeons. We are not informed as to the constitution of the veterinary department of that army, but it appears that each regiment of artillery—which consists of four battalions—is commanded by a liva-pasha, or general of brigade, with a colonel and lieutenant-colonel on his staff, to which is attached a first-class veterinary surgeon and thirteen other sub-officers. The command of an artillery battalion is entrusted to a *chef de bataillon*, or bin-bashi, with two adjutants-major, three medical officers, a veterinary surgeon, and three sub-officers as a staff. "Our correspondent

in Armenia was much struck with the battery mules in Armenia—strong, fine animals, many fourteen hands. They mostly come from Persia, and command a long price ; indeed, a man asked our correspondent £35 for a really good animal, and not only refused to take less, but rode away when he offered it." Artillery horses are mostly imported from Hungary, and are, though small, powerful, hardy animals. They are allowed 12 lb. of barley and 16 lb. of grass per diem ; in the month of May they are turned out to graze for fifteen days, when they receive only half rations of grain. With regard to cavalry, we are informed that in a *corps d'armée* it consists of two brigades, each of which is composed of two regiments. The regiment has six squadrons, and the effective strength of the squadron is 155 men and 165 horses. The staff of a regiment comprises one colonel, one lieutenant-colonel, two *chefs d'escadron*, two adjutants-major, two paymasters, nine medical officers of various grades, three veterinary surgeons, an armourer, a farrier, and a saddle-maker. The horses generally are country bred, and their rations consist of 9 lb. of barley and 12 lb. of grass. Occasionally, more especially in the 1st and 2nd army corps, Hungarian horses are found. They receive the amount stated as the ration for artillery horses. "All animals, country-bred as well as those imported, are turned out to grass for fifteen days in the month of May. The manner of shoeing is different from what we practise. A circular plate of iron, with a small round hole the size of a shilling in the centre, is fastened on with seven nails. This certainly protects the frog ; and our correspondent with the Turkish army found himself compelled to adopt it after a very short acquaintance with Armenian roads, although his horse had up to that time in European Turkey worn only the ordinary English shoe."

"BLAZES."—Nowadays, the horsy philosopher allows that "there are good horses of all colours and with all sorts of marks." It was not always so ; there was for a long while a great prejudice against horses with "blazes,"—which term, though properly only applicable to a peculiar streak of white on the face from the forehead to the nostrils, may for convenience be extended so as to include "white stockings" and "silver legs," the former expression being self-explanatory, and the latter referring to the rare case of a horse having one of its legs peppered as it were with white hairs. It is, of course, easy to say that the good horses with "blazes" are only the exceptions which prove the rule ; but when the exceptions are so very numerous as they might be shown to be (including "Eclipse," "Stockwell," and "Blair Athol," moreover), the rule appears to be in jeopardy. On the other hand, it is very justly observed by an authority that "we should never be in a hurry to reject the warnings of ancient tradition ; as it is the fruit of successive observations during several generations, it is nearly always based upon the experience of facts ;" and there is even still a general inclination to speak and think disparagingly of a horse with a *great deal* of white. The least objectionable form in which a "blaze" can appear seems to be that of a streak or star upon the face ; it certainly, even then, is rather unpleasantly suggestive of baldness ; but, if it do not indicate any deficiency more serious than weakness of mind, that cannot be considered any great drawback in the case of an animal whose mouth must be held with bit and bridle, and whose back is very frequently bestridden by one who is no Solomon, and who wears a cap indeed, but not the famous cap of consideration. As for "blazes," properly so called, "Stockwell" and "Blair Athol" have already been mentioned ; and they are a host in themselves. It may be added that chestnuts are the most liable to "blazes," and no doubt for that very reason have always been considered to bear them with more impunity than horses of any other colour. Was not "La Toucques," a good chestnut mare, winner of the French Derby and very

nearly of the Grand Prix, all over "blazes"? One would be sorry, relying upon memory alone, to do her injustice; but her name seems to evoke a spotted spectre as of a performer at Astley's, or of that piebald-painted animal not long ago bestridden by the headless horseman in Leicester Square. As regards "blazes" on the legs, the French have a proverb running "Cheval de trois, cheval de roi." Unfortunately the meaning, as not uncommonly happens with proverbs, is variously interpreted. It is admitted by general consent not to apply to what we call a horse with three legs, but to a horse with three white stockings; and there is a dispute as to whether it means a mere showy cocktail, such as a Sultan might ride on parade or in procession, or a horse of grand quality, fit for a king. In the latter case it might apply to the half-legendary "Eclipse," whose portraits seem to represent him sometimes with two white stockings and sometimes with four, so that, taking the usual course of splitting the difference, we should assign him three. As regards the real or supposed evils accompanying white stockings, they are by no means confined to looks and the fancies of fashion. The white stockings may be high or low, on the fore-legs or the hind-legs, on one fore-leg and one hind-leg, whether on the same side or diagonally; and there may be only one white stocking. Under any circumstances, the hoof, or that part of it, if any, which is white, to correspond with the white hairs, is declared to be more brittle and at the same time less hard than the black hoof. It is asserted, on the authority of thirty years' observation, that white stockings on the hind-legs are less important than on the fore-legs—lameness in the latter case being far more likely to ensue. At the same time it is better that there should be a white stocking on each, if on either, hind-leg, otherwise the leg with the single white stocking will probably show symptoms of "filling" before long. Whether the disadvantages are balanced and rendered null in the case of what the French call a *trans-travat*, or horse with diagonal white stockings fore and aft, and whether they are doubled in the case of a *travat*, or horse with two white stockings on the same side fore and aft, is a question which may be left for the public in general, and stablemen in particular; but what appears to have been clearly ascertained is, that bay horses with white stockings on the fore-legs are especially likely to suffer. If it were boldly stated that three white stockings, one in front, and two behind, indicated a peculiar aptitude for steeplechasing, *risum teneatis, amici!* Yet it is difficult to account in any other way for the singular change that came over "Astrolabe," the chestnut daughter of "Allez-y-Gaiment" and "Aganisia," in 1865. To her, being a chestnut, "blazes" and white stockings signified nothing if not steeplechasing, but she was, in defiance of her destiny, put to the selling-plater business on the flat, and made a sorry exhibition; but, being sold to M. Finot, she was schooled during the winter of 1864, and is said to have won as many as twelve steeplechases in 1865. She was running, at something under twenty years of age, last year; but it cannot be said that her success, at any rate in this country, was commensurate with her evident aptitude and her promise in 1865.

HÆMATURIA IN CATTLE.—Herr. Fr. Stouki, a veterinary surgeon resident in Finland, where Hæmaturia in cattle is specially prevalent—owing, as he thinks, to the practice of pasturing them in woods and on marshy ground—forwards to a German contemporary some notes of the line of treatment he has found exceptionally successful, in the hope that their publication may be of use to stockholders elsewhere. His practice has been to have the affected beasts at once housed in their sheds and fed upon nothing but hay. Slightly-soured milk is given as drink in the place of water, and a full action of the bowels ensured by administration of Glauber's salts. In addition to this

general treatment he gives a teaspoonful of sulphur balsam spread on a bit of bread every four hours, or in cases where the animals refuse the bread he gives it in a liquid form, diluted with twenty times its bulk of water. In all his experience he never had a patient under treatment more than four days, although in some instances the urine was already of a dark-red colour, and the cows had ceased either to eat or to chew the cud when they came under his care. Of forty cases recently under treatment he lost but one, and that was an ox suffering from concurrent constipation, which could not be overcome by either purgatives or enemata.

CATTLE PLAGUE.—The present cruel Russo-Turkish war has, as on former occasions, caused a wide diffusion of Cattle Plague, not only in the countries immediately occupied by the Russian armies, but in adjoining, and even somewhat remote, countries. In addition to the other horrors of war, this plague is the inevitable accompaniment of a Russian invasion. A contemporary states that Cattle Plague is extending at a serious and alarming rate in Transylvania, and that the Hungarian Minister of Commerce has sent a special commission to Paresova to inquire into the matter.

RABIES IN CORNWALL.—In the northern districts of Cornwa there are several mad dogs at large, and hundreds of sheep have been destroyed. The alarm of the inhabitants is so great that the police force is to be immediately increased, and each individual in it to be armed with a carbine. All dogs straying or suspected, or without muzzles, are to be at once shot.

TRICHINOSIS IN GERMANY.—Trichinosis has become excessively prevalent recently at Leipsic. All classes of the community, even the aristocracy, have been attacked by it; and at Stettin alone there were forty-one cases in one week.

THE SOLUBILITY OF SALICYLIC ACID.—Salicylic acid, the antiseptic properties of which are now so much vaunted, is very sparely soluble in cold water,—only one part to three hundred; while the undiluted acid or an alcoholic solution are not suitable for wounded or abraded surfaces. Dr. Bose has discovered that the solubility of the substance is greatly increased by the addition of borax: ten parts can be dissolved in one hundred parts of water if eight parts of borax have been previously added to the fluid. The borax is first dissolved by the aid of heat to the boiling point, and then the acid is put into the mixture. The most suitable strength in which this solution is recommended to be used for wounds is one which contains from $2\frac{1}{2}$ to 5 per cent. of salicylic acid, and 2 to 4 per cent. of borax.

Correspondence, etc.

SPURIOUS TITLES.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—As a graduate of an Edinburgh College, and using the affixes "E." and "L.," which seem to cause your correspondent "Rebus" so much annoyance, I am desirous of soothing his irritation, and, if possible, preventing the ulterior consequences of such a condition, by informing him why *I* do so.

And to put the matter straight and plain, I say at once, because I consider that there is as good a *legal* right to the one as the other. Whether there be any such distinction as M.R.C.V.S.L. or M.R.C.V.S.E., it is an undoubted fact that the great majority of the graduates at the Royal Veterinary College

in Camden Town, or the students who have studied there, adopt the former affix, with the evident intention of letting the public know that they studied there. And I have little doubt but that they consider there is great virtue in hailing from such an arcanum of science—at least, a great many of them believe that nothing good can possibly come from anywhere else. Now, if it be necessary to let the public know that they are graduates of the London School, by affixing the letter "*L*," it is only honest on the part of the Edinburgh graduates to affix the "*E*," so that the public may avoid inferior talent, when such is the opinion entertained of them.

But apart from the narrow notions held by graduates of veterinary science, the distinctions of "E" and "L" are affixed to the fellows or members of the Royal Societies of London and Edinburgh respectively. And even in the matter of the medical corporations of the three kingdoms, the initial letters of the countries are used to distinguish graduates. What more common than M.D. of London, or M.D. of Edinburgh, and even M.D. of Glasgow, St. Andrews, and Aberdeen?

If any one has passed the examinations of two regularly constituted boards—said boards having their head-quarters in two different countries—surely he is entitled, *cæteris paribus*, to use the initial letters of the capitals of the kingdom which the board claims as its home.

Now, it so happens that a Charter—or instrument granted by the Sovereign, with the advice of his or her Privy Councillors—is the source of power in both cases under consideration ; and if priority of constitution is of any consequence or concern, the one is about half a century older than the other. The Highland Society was established by Royal Charter in 1787, while the Royal College of Veterinary Surgeons was incorporated in 1844.

It is clear that the Highland and Agricultural Society has the power of appointing a board of examiners, and conferring a certificate or diploma of competence to practise the veterinary art ; or they could not have continued to do so to such an extent,—for they have granted upwards of 1000 diplomas. And not only are they empowered to do so, but they are enabled by the same means to grant certificates and diplomas in Agriculture and Forestry—thus completing the cycle of the sciences in connection with the most ancient and most useful arts for which our country is famous.

It is maintained by some, however, that the one is only a certificate, and the other a diploma. The difference is more apparent than real,—indeed, is purely conventional, and arises out of custom, fashion, or tacit agreement. A diploma is just a certificate, and nothing more—a writing conferring some privilege,—and is often given to agents who are authorised to transact business for their principals. The term diploma is given to a certificate, because it was formerly written on waxed notes and doubled together (from the Greek adjective διπλόος, double), so that none of the certificates really answer the conditions, and are consequently on a par in this respect.

Now, the value of a certificate or diploma is estimated by the eminence or status of those certifying ; and if we contrast the one with the other, we shall find that the certificates or diplomas of the Highland and Agricultural Society contain names of men as eminent in their respective departments as any that ever graced those of the Royal College of Veterinary Surgeons.

Nor is there any use cavilling about the letters M.R.C.V.S. and merely V.S., for they both imply the same thing—viz., veterinary surgeon,—and are so regarded and received by the public ; and we have lately been made aware that we are not entitled to the exclusive use of any of them : at least, we are unable to challenge the right of any one who may choose to adopt them. When such is the case, and when they are pretty much on a par as to the qualifications of the examiners, what is the use or object of all this chirping about royalty, and these envious sneers at an Edinburgh graduate if he

should affix the letter E to his name? So far as the right to do so is concerned—and which is the question "Rebus" puts—they are on a par, for it is only a Royal Charter in both cases, with this difference, that one exists by the sale of its certificate and has no other means of subsistence, while the other is supported by other means, and gives its certificate to all who are declared worthy.

From personal experience I can state that the examination of the Highland Society's diploma, or certificate, is fully as difficult, and conducted as fairly, as that for the Royal College of Veterinary Surgeons; and if the documents themselves be compared, the one is as good as the other, whether you compare the paper on which they are printed or the *tout ensemble* of both.

With these facts patent to all, am I to be told that I have no right to let the public know that I have passed both boards without being called in question as an aggressor on professional etiquette, and, in effect, saying that I have something that is spurious or of doubtful legality? Nay, sir! I cannot, I dare not, I will not stand by without raising my voice or wielding my pen against this continual croaking about Royalty, and these attempts at raising a prejudice against one document in favour of another, because, forsooth, one is not honoured by Royalty, and must, therefore, be elbowed into a corner as a mere mushroom affair that has sprung up in a night, and which they would wish to disappear in about the same time. What has Royalty ever done for the profession, or its *protégé* either, that it has to be hugged as a benefactor? There could not be a better proof "that the source of power is in the people" than that afforded by the inability of a Royal Charter to protect our rights granted, or apparently granted, by this right Royal Incorporation.

And what has the Royal College of Veterinary Surgeons ever done for the profession that it is entitled to our loyalty any more than the Highland Society? It has relieved us of our money, and given us a *sham* title instead, or a pretended right to a title that is common property, or, at least, that it is unable to protect.

The Highland Society does not pretend to give a title; but it examines us as to our knowledge, and testifies to our ability to practise the art. Its examinations are open to all; and it invites all who are interested to come and see and hear the proceedings; and in this respect it contrasts very strongly with the R.C.V.S., for most of its departments are presided over and certified by one man—no doubt the best in his way; but any one for such a position, however eminent he may be, would require to be possessed of the gift of infallibility.

I trust I have said enough to convince your correspondent "Rebus" that any licentiate of both boards has a right to use the letters "E" and "L." Even though there be no Royal College of Veterinary Surgeons for Scotland, there certainly is a Scottish Board which confers the title on students who have studied there; and there is still, it would seem, a Royal Veterinary College, with probably as good a right to the title of Royal as the one which now claims its exclusive use.

I must not, however, pursue this subject farther, but should just like to say a few words on Mr. Walker's paper on "Quackery in and out of the Profession," read at the Yorkshire meeting, as it is *apropos* to this subject.

First, then, I would say that is a manly, straightforward, and honest statement of the condition of the body corporate, and certainly does not reflect great credit on that body if the different phases of quackery he delineates in the profession be very extensively practised.

It would have been well that the opinions of some of those who took part in the "warm and animated discussion" which followed the reading

of the paper had been published, so that we could have ascertained whether his ideas were confirmed, or condemned, or extensively prevalent.

I am glad to find that the members were unanimous in their opinion as to the derogation suffered by the profession in consulting or being consulted by quacks; but I would take the liberty of saying that the method they have adopted to put them down—viz., "to advertise them in the local papers"—is worse than useless, and for the following reasons: Firstly, only one-half of the English people can read; secondly, those who can read do not, as a rule, read newspapers; and lastly, those who do read them will not be likely to be influenced by such an announcement. It is only by letting the public know, through the means of a prosecution in a county court, that we have an exclusive right to the title we adopt, that can ever have the slightest effect in impressing it on the public mind. The advertising in local journals will be a mere waste of money, for it will be as futile as it will require to be frequent if they set about it in earnest. So long as such opinions prevail in such high quarters we may despair of any relief being afforded by such means from such an intolerable grievance.

But who is equal to this undertaking? The Yorkshire Society, in *assuming* the *loco parentis* of the Royal College of Veterinary Surgeons, tends only to make matters worse, unless it should be followed by similar action on the part of other associations—by postponing the matter indefinitely, and giving the R.C.V.S. an excuse for its inaction. Surely, as Mr. Walker says, "when they get our money, and necessitate our spending a certain time at a recognised school before being eliglble for examination even, it is not too much to expect that they should be able to give us a legal title to the name and status of veterinary surgeon."

But the transcendental ideas which obtain at the Council Board on the subject of education sink all others into insignificance, and warrant the inference that they care little for the profession if they can only assist the schools. Such, at least, has been the tendency of their policy for the three past years; and, judging from recently expressed opinions on the subject of protection, it will be some thirty years more before anything of this nature is attempted.

No less an authority than the *Lancet*, in treating on this subject, says: "Any corporation which contents itself with granting qualifications to practise under its authority, but declines or neglects to assert the value of its diploma—tacitly admitting that, so far as any protection is concerned, the license is not a necessity—plays not merely a careless but a short-sighted part. The licensing bodies have no moral right to leave their members and licentiates to take their chance with the public against unqualified practitioners."

But the Council generally seem to entertain the idea that their superior qualifications will overrule and extinguish all inferior and unlicensed practitioners, that we shall pale before the intellectual fires lit up by the future Fellows of this Royal Corporation, and disappear before their superior light like glowworms before the Orient sun.

It behoves those who preach these doctrines to prove them by their practice.

I am, dear sir, yours faithfully,

Market Deeping. JOHN GERRARD, M.R.C.V.S.

CURARE IN HYDROPHOBIA.

To the Editor of the VETERINARY JOURNAL.

HONOURED SIR,—In the *Times* of November 3rd, 1877, a letter from you to the editor is published on the subject of Hydrophobia, and in it occurs the

following: "In July, 1876, I published in the *Veterinary Journal*, of which I am editor, the account of Dr. Offenberg's successful case. Another instance in which the same potent drug appears to have also acted beneficially, is recorded in the *Veterinary Journal* for January of this year. Dr. Watson, surgeon to the Jersey City Charity, New York, successfully treated a case of Rabies in man, by the administration of woorara or curare and strychnine."

The information that a second case of Hydrophobia had been successfully treated with curare is of great interest, as it leads to the hope that other human lives—apparently lost—may be saved by that agent, and perhaps that curare may be the long-sought-for remedy for Hydrophobia. It appeared, however, very curious to me to read that in Dr. Watson's case strychnine was employed, besides curare. I am of opinion that the use of strychnine, especially in large doses, can only act injuriously during the convulsive spasms of Hydrophobia, as this poison produces spasms; and hence it seems probable that there exists an antagonism between the action of curare and that of strychnine. I intend publishing very shortly a memoir on the treatment of Hydrophobia, and it would therefore be of great importance to me to know something more about the Dr. Watson's case mentioned above, as it does not yet seem to be known in Germany.

I would therefore respectfully ask you to communicate more about the case. Especially would I be greatly obliged to you, if you would send me, if possible, the copy of the *Veterinary Journal* in which the case is recorded. I shall not forget to forward my memoir in return, when it is published,

Yours most obediently,

Dr. OFFENBERG.

Wickrath, Rhenish Prussia, *December 12th*, 1877.

[We gladly accede to Dr. Offenberg's request, and forward a copy of the *Veterinary Journal* of the date mentioned. A very detailed account of Dr. Watson's successful case was published in the *American Journal of Medical Sciences* for July, 1876 (p. 18), and from this our brief notice was taken. To this account Dr. Offenberg had better refer. We need only here state that both Dr. Watson and Professor Austin Flint regarded the case as one of true Hydrophobia. The curara and strychnine were not administered at the same time, the former being given until it produced ill effects, when the strychnine was given, as its use was then indicated. There was a gradual exacerbation in the severity of the symptoms until after the curara was administered subcutaneously in large and increasing doses—$\frac{1}{16}$th grain, $\frac{1}{9}$th grain, $\frac{1}{6}$th grain—every three hours; when they subsided after the third injection.

Another successful case which we have not recorded, and which does not appear to be known to Dr. Offenberg, is published by Dr. Polli, in *Le Paris Medicale* for May 17, 1877. A child, twelve years old, had been bitten by a rabid dog eighty days before the manifestations of the Hydrophobia symptoms. Subcutaneous injection of morphia and chloroform inhalation having been tried without success, curara was injected subcutaneously on seven different occasions, within the short space of five hours and a half. During this period twenty centigrammes (three grains) of curara were injected. The hydrophobic symptoms quickly subsided, being replaced by paralytic phenomena of a very pronounced character. Two days subsequently some renewed hydrophobic symptoms were completely dissipated by another injection of three centigrammes (nearly half a grain) of curara.

The child slowly recovered. We may remark that Sewell, of the Royal Veterinary College, a long time ago suggested the employment of curara in Hydrophobia; and Trousseau, ten years since, thought it might be useful in this malady if injected subcutaneously.]

CORRIGENDA.

MISS DICK desires to correct an error which appears in the opening address delivered by Dr. Aitken, at the Veterinary College, Edinburgh, and which was published in the last number of the *Journal*. The Doctor is reported to have stated that "it was now many years since Professor Dick came to Edinburgh;" but Miss Dick states that this is not correct, and we have her authority for saying that the greatly distinguished and talented teacher, whose memory is venerated by all who were taught by him, was born in Edinburgh, in the White Horse Close, Canongate.

PROFESOR WALLEY desires the following corrections to be made with reference to his remarks at the meeting of the Scottish Metropolitan Veterinary Medical Society (p. 452). Instead of saying that "Mr. Melvin had stated that Zymotic Pleuro-pneumonia was introduced by Dutch cattle," the remarks should read, "Mr. Melvin had stated that in those areas into which Dutch cattle were introduced, Pleuro-pneumonia existed to a greater extent than in any other part of Scotland—thereby leading to the inference that the Dutch cattle introduced the disease."

AT p. 450, line 18 from bottom, "weeks" should read "months"; and at p. 452, "Mr. Aitken, Leith," should be "Mr. Aitken, Dalkeith."

TO CORRESPONDENTS.

T. W. SIMCOCKS, DROGHEDA.—The best French work on "Veterinary Operative Surgery," is that just published in two volumes by Peuch and Toussaint, entitled "Précis de Chirurgie Vétérinaire, comprenant l'Anatomie Chirurgicale et la Médecine Opératoire." It has long been a cause for regret that there is no treatise on operative surgery in the English language, In German, there is Hering's excellent "Handbuch der Thierärztlichen Operationslehre," which is in some respects perhaps better than Peuch and Toussaint's. There is every need in this country for a well written and complete work of this kind.

Several communications and reviews of books, pressed out of this month's number of the *Journal*, will appear in our next.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from R. S. Reynolds, Liverpool; Graham Mitchell, Melbourne, Australia; E. Déle, Antwerp, Belgium; Hewlett & Co., London; T. D. Gregory, Bideford; Dr. Acland, University, Oxford; J. T. Duncan, Canada; A. E. Macgillivray, Banff; J. Rowe, London; Dr. Offenberg, Wickrath, Rhenish Prussia; Professor Walley, Edinburgh; Dr. Gowers, University College, London; W. Woods, Wigan; D. Menzies, St. Austell; J. Gerrard, Market Deeping; Miss Dick, Fife; Dr. Ewart, University College, London; J. W. Hill, Wolverhampton; T. W. Simcocks, Drogheda; A. Liautard, New York.

BOOKS: *E. Déle*, L'Emphysème Interlobulaire du Poumon et la Pleuropneumonie Contagieuse chez la Bête Bovine; *G. Armatage*, Every Man his own Horse Doctor; *J. G. Putz*, Zur Pathologischen Zootomie des Lungenrotzes der Pferd; *Dr. Gowers*, The Pathological Anatomy of Canine Chorea; The Pathological Anatomy of Hydrophobia; Transactions of the Pathological Society of London for 1877.

JOURNALS: *Nineteenth Century; Lancet; Edinburgh Medical Journal; Practitioner; Archives Véterinaire; Annales de Médecine Vétérinaire; Recueil de Médecine Vétérinaire; British Medical Journal; Medical Times and Gazette; Medical Examiner; Journal of the Agricultural Society of Victoria; Deutsche Zeitschrift für Thiermedicin; Revue Vétérinaire; Journal de Médecine Vétérinaire; Le Journal d'Agriculture; Practitioner; Der Thierarzt; Oesterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde.*

NEWSPAPERS: *Farmer; Mark Lane Express; Agricultural Gazette; Scotchman; Live Stock Journal; Australasian; Melbourne Argus; Melbourne Age; Melbourne Leader; Australasian Sketcher; Scotchman; Field; Montreal Herald; Magnet; Montreal Gazette; Jackson's Oxford Journal; Edinburgh Daily Review; Homeward Mail.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

FEBRUARY, 1878.

RABIES.

BY W. A. TAYLOR, F.R.C.V.S., MANCHESTER.

THE concluding editorial remarks on the case of Rabies in Captain Cotton's mare, a description of which appeared in the December number of the *Veterinary Journal*, stimulate me to pen these few lines on the results of my experience of this terrible malady, so far as memory and rough memoranda serve me. And here I may express my regret for the thoughtlessness I have hitherto been guilty of, in not having kept statistics of cases of Rabies I have witnessed.

About four years ago I had the satisfaction—professionally speaking—of witnessing, within a fortnight, three undoubted cases of Rabies Equina. In two of the cases there was positive evidence of the transmission of the disease; inasmuch as both horses had been bitten by one and the same dog, which was declared by eye-witnesses to have been rabid at the time of the infliction of the wounds. All endeavours to ascertain the whereabouts or final end of the dog proved fruitless. The third animal, although not known to have been bitten, it was fair to infer had received the virus by inoculation—partly from the fact that no case of spontaneous Rabies in the horse has been recorded, and partly from the local symptoms evinced.

In all three cases the premonitory symptoms were alike. There was great restlessness on the part of the animals,—indeed, in one instance the horse was believed by the owner to be suffering from Colic—and intense irritation of the locality bitten, demonstrated by the almost unceasing rubbing of the part against any fixed object. Two of the animals had been bitten on the nose; and the other, judging from the localization of the irritation, had received the fatal wound in the cheek. The intensity of the irritation or itching was so great, that in all the cases the animals abraded the skin to such an extent as to literally rub off the epidermis and produce a highly inflamed condition of the dermis, constantly aggravated and increased in area by the apparent desire to relieve the itching by friction, until the whole of the skin on the bitten side of the head was reduced to a pulp-like mass. The usual train of symptoms followed: intense watchfulness, great thirst, ferociously attacking tangible and imaginary objects, wildly neighing, etc., until death closed the scene. Two of these poor brutes fractured the anterior maxilla, by the terrific force with which they dashed at and seized iron mangers.

Two of the three were in so dangerously advanced a stage of the disease, that treatment could only have been pursued at a risk to human life. The third animal was a robust draught-mare, and as the primary symptoms only of the disease had manifested themselves, treatment was decided upon.

About the time above alluded to, the so-called "Birling Remedy" was much vaunted and discussed; and to try its virtues upon rabid animals I was bent. Through the kindness of a medical friend, who had previously obtained a supply of the "cure" from its original source, I was placed in a position as regarded the possession of the material favourable for the carrying out of my intentions. How far those intentions were to be frustrated by the anticipated inability of the mare to swallow, together with the paroxysms which would accrue on attempting to force the medicine upon her, was soon ascertained. The exhibition of the drench in the usual manner was first tried; but the resistance and violence of the mare caused by the attempt rendered a successful administration in that manner impossible.

She was then placed in the stocks, and securely fastened; when it was found impracticable to effect a proper administration of the drench, owing to the frenzied state of the mare, and her partial inability to deglutate. No further attempt at treatment was made; the symptoms became more and more developed, and death ensued. In this instance, as only a very small portion of the "cure" was swallowed, it would have been unfair to have pronounced a decision as to its worth.

In another case, which occurred in the practice of Mr. Hopkin—in whose presence, and that of Mr. Dacre, V.S., myself, and a number of surgeons, the subject (a small pony) was cast and secured—liq. am. fort. ʒss., diluted with aqua ℥ij., was injected directly into the circulation through an incision in the jugular vein. This treatment had no appreciable effect, and the pony died the following day.

With regard to Rabies Canina, it has been my lot to witness many cases, a large majority of which were of the so-called "dumb" form; and in this form, as affecting the dog, I had another opportunity of testing the efficacy of the "Birling Cure." Again, however, though its administration was successful, its supposed salutary effects proved *nil:* the dog passed through the successive stages of the malady, and finally succumbed.

The last case treated was, on the suggestion of a medical friend, injected hypodermically with a solution of mercuric cyanide; but this, too, like all hitherto-tried specifics—with perhaps the exception of curara—failed.

To-day (8th January) I witnessed in Mr. Hopkin's infirmary the subcutaneous administration of curara to a rabid dog. The result of the exhibition of this potent agent will, no doubt, be recorded by Mr. Hopkin.

A few weeks ago I noticed in the *Live Stock Journal* a communication on Rabies, in which the writer gave the result of his experience with regard to the breed of dog he had observed to be most often the subject of the Rabies poison. He quoted the number of cases he had seen, and retrievers had a large majority.

In large-sized dogs my experience bears out his statement. I have seen one rabid mastiff, one pointer, and one greyhound. The two first-named suffered from the "dumb" form, the last

from the "furious." But by far the majority of the total number of cases it has been my lot to see have been in small-sized curs and mongrel terriers.

Up to the present time no certain remedy for Hydrophobia and Rabies has been discovered; and until the day such a desideratum shall have been secured, and even afterwards, too much stress cannot be brought to bear upon the necessity for exertion in the direction of precautionary measures and prevention.

NOTES ON THE HYPODERMIC USE OF MEDICINES.

BY JOHN DOWLING ALLMAN, CREECHURCH LANE, LONDON.

I HAVE had frequent inquiries from many members of the veterinary profession, for reliable solutions of some of the principal medicines suitable for subcutaneous injection. I know that a good many scientific practitioners constantly use the hypodermic syringe, and have derived wonderful effects from its use—often saving valuable life where imminent death was threatened, and curing diseases which were intractable to remedies given by the mouth. A loss has been sadly felt by the profession for some of the principal alkaloids in solution, and suitable for subcutaneous use. In order to supply this want, I have recently made a special research into the hypodermic mode of administering medicines; and the information I have obtained, both from foreign and English authors, has enabled me to decide on some valuable and useful concentrated solutions, which will be found to have their full physiological and therapeutical action. The hypodermic mode of treatment has certainly many advantages; for with a small dose, and in a short space of time, an animal can be brought under the full physiological effects of the drug injected, and without in any way deranging the digestive organs, or the chance of having the remedy impaired by the gastric fluids. In many acute or subacute diseases, in which the pain is intense, and the animal shows no signs of relief by medicines already administered by the mouth, the subcutaneous injection is the last and only resource; and in most cases will give immediate relief. For

instance, in Spasmodic Colic, Pleurisy, and Pleurodynia, an animal can be relieved at once by injecting subcutaneously morphia and atropine. The operation is of the simplest description. A fold of loose skin is taken up between the finger and thumb of the left hand, the cannulated needle of a suitable syringe is inserted with the right hand, the point being carried about an inch underneath the skin, and parallel with the surface; the syringe is then slowly emptied, held for a minute or two, cautiously withdrawn, and the finger pressed for a brief space on the track of the needle. It is not necessary to dress or plaster the small puncture; and provided the solution is properly prepared, no local suppuration takes place.

Subcutaneous injection has been very successfully employed by Mr. F. J. Mavor, M.R.C.V.S., Park Street; Mr. H. W. Thomas, M.R.C.V.S., Plymouth; Mr. Alex. Lawson, M.R.C.V.S., Manchester, and many other veterinarians; and owing to the marvellous results obtained from its use, it is becoming more generally adopted,—in fact, the observant and scientific veterinarian deems it as necessary to have his hypodermic syringe at hand, as he now considers the necessity of his clinical thermometer, the importance of which I have already pointed out in the pages of this journal. I was present when Mr. Spencer Wells, the eminent surgeon, delivered his address on surgery at the British Medical Meeting, held at Manchester in August last. Speaking of clinical thermometrics, Mr. Wells remarked: "Gentlemen, you start under immense advantages. When I began to practise surgery, the only test of normal or fever heat was the sensation conveyed to the surgeon's hand. It is hardly more than twenty years since the coincidence of a rigour and high temperature was first satisfactorily proved. Now, the most delicate self-registering thermometers are not only carried by every careful surgeon, but every well-trained nurse is taught to make and record as many daily observations as the nature of the case may require. The various forms of surgical fever—Pyæmia, Septicæmia, Erysipelas—are, in consequence, far better known, and more perfectly guarded against, while the ground is cleared for the study of their more successful treatment." So with the hypodermic syringe: every careful

surgeon and veterinary surgeon is provided with one, to meet any emergent case that may arise. Mr. F. J. Mavor, M.R.C.V.S., records some interesting clinical cases and experiments in his work "The Specific Action of Drugs"; and in order to make my article a little interesting, I take the liberty of quoting a few here:—

Case *e.*—A mare with the following symptoms—"quick full pulse, temperature 104°, conjunctivæ injected, tongue extremely dry, bowels constipated, no fæces having passed for forty-eight hours, extreme pain, as indicated by the animal rolling itself about on the ground, perspiring freely"—was cured by the following treatment: Hot fomentations to abdomen, restorative doses of nitrate of strychnine and belladonna every four hours by the mouth, and a few doses subcutaneously injected. In a few hours pain had entirely subsided, and in forty-eight hours the animal was quite well, the bowels having acted freely, and thus relieved the distended colon.

g.—This horse had been exposed to cold and wet, and when first seen was rolling about, evidently suffering great pain in the abdomen: a physiological dose of atropine and morphia was at once injected subcutaneously, which immediately relieved the colic.

h.—This animal, when first seen, was suffering great pain, with spasmodic action of the diaphragm, and evidently in great distress, breathing very quick: a physiological dose of atropine and morphia, injected subcutaneously at once, and repeated twice at intervals of seven hours; within twenty-four hours he was quite well.

l.—This horse was suffering from rheumatism in the off-shoulder, with twitching of the muscles and lameness. Injected subcutaneously two grains of acetate of morphia. Next day he was much improved; repeated the dose. The third day he was nearly sound, and no twitching; and by the fourth day he was quite sound.

Hypodermic Solutions and their Therapeutics.

Injectio Morphiæ Hypodermica (1 gr. in 12 minims).—Twenty-four minims (2 grs.), injected subcutaneously, will be found invalu-

able to relieve pain arising from any cause—such as Spasmodic Colic, Neuralgia, Acute Rheumatism, Enteritis in horses and cattle; and used conjointly with atropine, great results are obtained in Tetanus and Spasmodic Cough. When morphia and atropine are injected simultaneously, the nausea and vomiting which frequently follows the administration of full doses of opiates is checked, the effects of both drugs are accelerated and intensified, the anti-spasmodic and anodyne properties are more conspicuous and prolonged.

Injectio Atropiæ Hypodermica (1 gr. in 3ij.).—Twelve minims to twenty-four ($\frac{1}{10}$th to $\frac{1}{5}$th gr.), injected subcutaneously, relieves Spasmodic Asthma, Colic, Gastrodynia, Rheumatism, Pleurisy, Pleurodynia, and is useful in Ophthalmia. Large doses cause dryness of the mouth, yawning, restlessness, and nervousness, the membranes of the eye become injected, twitching of the intercostales and panniculus carnosus. The action of atropine on horses and dogs has been fully demonstrated by Dr. J. Harley and by Mr. F. J. Mavor, M.R.C.V.S., as the following experiment on a horse in health will illustrate ("Specific Action of Drugs," Burness and Mavor, p. 63):—One grain of atropine was given subcutaneously to a horse, producing dilatation of the pupils and dryness of the tongue; the frequency of the pulse was increased, and it became very soft and compressible. The horse was very restless, and there was a good deal of involuntary muscular twitching, especially of the muscles of the neck; the conjunctivæ were injected, and the horse gaped and sighed at intervals. He had a staring, frightened look, and was easily startled, pawing the ground at intervals, and kicking out as if at some imaginary object. These effects passed off by next day.

Injectio Conia (grs. xx. in 3ij.).—Injected subcutaneously, in doses of 10 grs. to 15 grs., acts as a direct sedative, especially on the spinal cord. Useful in Tetanus, especially where the jaws are firmly locked. The following interesting case is recorded by Mr. Mavor ("Specific Action of Drugs, p. 90"):—The horse, when first seen, had the jaws firmly closed, and resisted all attempts at separation; the muscles of the neck rigid, great difficulty in moving its head, and unable to bend its neck;

pulse 42; pupils normal; temperature 100⅖. At 12 noon gave by subcutaneous injection 15 grs. conia. At 12.7 jaws opened slightly (2 in.); could eat some hay; pulse 35. At 12.15 eyelids drooping. At 12.25 ate some hay; could raise his head easier. At 12.50 eyelids drooping very much, conjunctivæ moist; eats freely; pulse 36. At 3 p.m. signs of rigidity returning; passed fæces three times since 12. At 5.35 p.m. gave 20 grs. conia. Next day horse much better, and quite recovered under the use of strychnine introduced hypodermically.

Injectio Strychniæ (1 gr. in ʒij.).—Indicated in Tetanus alone, or in conjunction with conia, as already mentioned; in Gastro-enteritis, constipation, imperfect power of urination; in muscular paralysis; weakened or deranged motor power in cattle, especially after Puerperal Apoplexy; "dropping after calving;" in the early stages of paralysis of those muscles of the larynx of the horse, which produces the condition commonly known as "roaring." For this latter purpose, half a grain to a grain injected subcutaneously will prove successful. Likewise useful in Chorea, and many epileptic cases, and can be used with advantage in restoring deranged function of the intestinal canal, acting more readily than any of the active purgatives given by the mouth, and does not produce violent peristaltic action, or exhaustion of the system.

In concluding this article, I might mention, for the information of those who have not hitherto used medicines subcutaneously, that a half, or even a third, of the quantity of any drug given subcutaneously has the same physiological effect as the usual dose given by the mouth. Some solutions produce local suppuration, owing to their not being properly prepared; but this I have guarded against, by using glycerine as a solvent.

PREMATURE LACTATION AND ABORTION.

COMMUNICATED BY MR. T. E. J. LLOYD, FAIRFIELD, LIVERPOOL.

A FARMER living in the district of Aughton, having a heifer a year and nine months old, put it to the bull, and there was

every indication of her being pregnant; she being perfectly calm, having a good appetite, and daily increasing in size. Five months afterwards, she was noticed milking herself in the fields; this would be about September 12th. On the same day Mr. W. E. Brown, Veterinary Surgeon of Ormskirk, was asked to look at her, but he was unable to ascertain the cause of her milking herself. He, however, gave his opinion that she was then with calf, and that the calf was alive; and he recommended that she should not be interfered with, also that they should not milk her. A day or two afterwards, a gentleman (whose name I could not ascertain) called from Liverpool, and having a good reputation as to his knowledge of cattle, was told about the heifer milking herself. On seeing her, and after having gone through a great many manœuvres, he said she had aborted, and that it was absurd not to milk her, it being a great cruelty to leave her udder so full. She was accordingly milked along with the other cows, yielding as much as three quarts daily. Thus they continued following out this practice, although Mr. Brown had condemned it, and had also told them the calf would surely be starved, as they were robbing it of its nutriment. On December 1st she was noticed to be straining, and Mr. Brown was called in to see her. When he arrived, he found her straining very violently, and upon his inquiring into the history of the case, he discovered that no change had been made in her food, etc. She was rather constipated, and the evacuations were of a very dark colour; on examining the vagina, he found no indications of approaching parturition—that canal and the adjoining parts not having become relaxed in the slightest degree. Accordingly, thinking it was an alimentary derangement, he gave her a strong saline purgative draught, leaving word that should she continue straining, he was to be apprised of it in the course of the afternoon. At 6 p.m. the man arrived at the surgery, and asked to see Mr. Brown personally, when he informed him that about 1 p.m. the heifer had aborted, and asked if he would like to see the calf. Mr. Brown answered in the affirmative, and drove over next morning to see the fœtus, which he found to be a bull calf, with just the rudiments of hair appearing through its skin. The heifer was put to the bull last

May, so that she would have been two months short of the ordinary time of calving.

ON SOME OF THE SKIN DISEASES OF THE DOG THAT ARE COMMONLY KNOWN AS "MANGE."

BY J. A. NUNN, M.R.C.V.S., ROYAL ARTILLERY.

IT is with some diffidence that I venture to discuss a group of diseases which, for many generations, has proved a scourge to man's most faithful servant and companion—the dog. The diseases I allude to are of a class affecting the skin, and are commonly known as "Mange." Diseases such as these, that are so insidious in their progress, and loathsome, if not fatal, in their results, must naturally be of great importance to us as veterinary surgeons. I shall endeavour, as far as possible, to give a history of these maladies, embracing causes, symptoms, *post-mortem* appearances, treatment, and preventive measures; alluding to the opinions of different authorities on these subjects, and concluding by offering my own, together with other observations I have been enabled to make.

There are several systems of classification of skin diseases in the human subject, all of which have their recommendations, and all of which have their faults. The reason for these very elaborate distinctions and systems, is because of the cutaneous maladies of the human subject being much more numerous, and much more important, than those of the lower animals. When I say important, I do not mean that they are more liable to be fatal; but what might be overlooked in one of the lower animals, or taken very little notice of, would render a human being a loathsome object till the complaint was got rid of. Considering that the nature of these affections, and the importance attached to them, depends in a great measure on the structures they attack, it may perhaps be well to enumerate briefly the different parts into which the skin is divided. The skin is divided into dermis or *true*, and epidermis or *scarf* skin—this latter being insensible, and a product of the dermis. It is composed of a number of epithelial cells, arranged in a deep and superficial layer. In the

deep layer, the cells are more or less rounded in form. The thickness of the epidermis varies in different parts of the body, in proportion to the amount of friction and pressure it is exposed to—as on the ball of the toe. In dogs with black skins, the colouring matter is contained in the cells of the lower layer of epidermis ; this layer is called the *rete mucosum*. Haller, and some others, have been inclined to doubt its existence ; but Cruickshank has clearly demonstrated it in a negro, and therefore it may fairly be inferred from analogy to exist in a modified form in the white subject. Cruickshank's own words are as follows :—

"When a blister has been applied to the skin of a negro, if it has not been very stimulating, in about twelve hours afterwards, a thin, transparent, greyish membrane is raised, under which we find a fluid. This membrane is the epidermis or scarf skin. When this, with the fluid, is removed, the surface underneath appears black ; but if the blister is very stimulating, another membrane, in which the black colouring matter resides, would also have been raised with the epidermis. This is the *rete mucosum*, which is itself double, consisting of a grey transparent membrane, and a black web, very much resembling the *pigmentum nigrum* of the eye. When this membrane is removed, the surface of the true skin comes into view, and is white like that of a European. The *rete mucosum* gives colour to the skin, is black in the negro, and white, brown, or yellowish in the European."

The dermis, *cutis vera*, or true skin, seems chiefly to consist of a number of small, very dense fibres, interwoven together, and being more dense in their structure the nearer they are situated to the epidermis. These fibres form, by their intermingling, a number of spaces or areolæ, which are largest in the deepest portions, where they are filled up with fat, but become smaller, and are ultimately obliterated, as they approach the surface. The physical properties of the skin are its toughness and elasticity, and, from its abundant supply of nerve fibres, its sensitiveness. The dermis is divided, anatomically, into two parts—the "corium," and the "panniculus adiposus." It contains the hair follicles, and the sudoriparous and the sebaceous glands. The

external surface of the dermis is covered by a number of papillæ, that vary in size and number, according to their situation. These papillæ are conical elevations of the corium, with one attached and one or more free and divided extremities. They are abundantly supplied with bloodvessels; and some, but not all, have branches of the cutaneous plexus of nerves distributed to them, and to which they owe their exquisite sensibility and tactile properties. The papillæ, in a healthy state, are on a level with the corium; but on the application of any stimulant or irritant, the corium shrinks, and the papillæ remaining in their original state, or only shrinking in a very slight degree, produce the rough and corrugated appearance seen in dogs suffering from Eczema. The "panniculus adiposus" consists of the loose network of areolar tissue below the corium, the interspaces being filled with fat. It rests on a layer of connective tissue, which is interposed between it and the muscular structures. It contains the secreting portion of the sudoriparous glands. These glands consist of a rolled-up mass of tubuli, proceeding from the "panniculus adiposus," in a lobular mass of tubuli which is convoluted upon itself, and is surrounded by a small plexus of bloodvessels. The duct ascends in a straight direction throughout its course, is of the same diameter, and lined with epithelium that is continuous with the epidermis,—indeed, the portion of the duct that passes through that structure is composed of its scales, which are modified in form. These glands are abundantly distributed over the whole body; and some idea of their number may be obtained from the observation of Krame, who estimated the secreting surface to be eight square inches in the human body, and the number of glands at 2,381,248. The sudoriparous glands of the dog are peculiar, being at the secreting portion sacculated, the tubal or duct portion straight, and the orifice funnel-shaped; they are fewer in number in the dog than any other domesticated animal. It has been stated that the dog never perspires by the skin—only by the mouth; and this to a certain extent is true, as sensible perspiration is not often seen; but Stonehenge, in his work on the dog, says that he has frequently seen drops of perspiration fall off greyhounds, and other dogs, after undergoing exertion in warm weather. These glands form important excretory organs,

—so much so, in fact, that if their action is stopped by painting an animal over with varnish, tar, or other air-tight substance, it will quickly succumb. The quantity of the secretion is increased by pain or exertion, and is diminished by atmospheric pressure. Perspiration has been analysed by a number of different chemists. Berzilius found in it water, acetic acid, lactic acid, chloride of potassium and sodium, phosphate of lime, and a trace of iron. Anselmino found the perspiration of man to contain in 1000 parts—

Water	995·00
Animal matters, with lime	·10
Sulphates, and substances soluble in water . .	1·05
Chlorides of sodium and potassium . . .	2·40
Acetic acid, acetates, and lactates . . .	1·45

He further states that the only difference that he could detect between the sweat of man and of the horse, was an excess of phosphate of lime and animal matter in the latter. The secretion is generally stated to be acid, but M. Colin found it to be alkaline when dripping off the surface of an animal. The sebaceous glands secrete a waxy or oily matter for the lubrication of the skin. They are generally found near to, and opening into, a hair follicle, in which case they are usually found in pairs—one on each side. They are lobulated, and composed of a number of sacculi aggregated together. They are very fully developed in the dog; and in this animal, and the sheep, two or more of these glands have been observed to coalesce, forming one compound gland having a common opening. These glands in the dog are of peculiar interest, it having of late years been ascertained that they are the habitation of a troublesome parasite—the *acaris folliculorum*.

The hair is generally looked upon as an appendage of the skin, being in reality a modified form of the epidermis, and continuous with it, both coming off together on the application of a blister. Each hair is formed of an external or certicular layer, composed of a number of modified epithelial scales, overhanging each other like the scales of a fish, with their free borders towards the point. These external scales are formed from the medulla in the same way that the epidermis is formed from the true

skin. The cells in the medulla are irregularly shaped, and contain fat and pigment granules.

By friction, as the cells advance from the root upwards, they become dry and fall off; by this means the hair attains its fine point. In some cases (in the tiger, for instance) a very perfect canal is seen. This is also sometimes the case in the human subject. The large cells of the medulla can be traced from near the point to the papillæ, from which the hair springs, and where they are replaced by masses of round cells that surround the papillæ, and are continuous with those of the epidermis lining the follicle, and are called the vagina or sheath of the hair bulb. The cells between the external and medullary layers have a fusiform appearance, and have often been counted as a third layer. In some very thin hairs the medulla is wanting. The hairs grow entirely from the papillæ, by the proliferation of the epidermoidal cells. Kölliker first described the presence of muscles in connection with the hair-follicles, by means of which the phenomena of the coat standing on end is brought about. These muscles are described by Mr. Lister; they are in a plane perpendicular to the surface of the skin, and parallel to the hair-follicle, forming an acute angle with it. These muscles are seen to perfection in the "feelers" of feline animals.

Skin diseases of dogs, amongst non-professional persons, are usually included under two heads—"Mange" and "Surfeit"; for which every dog-fancier and keeper has his own and never-failing remedy. As before stated, there are several modes of classifying skin diseases. Williams, on the artificial system, classes diseases according to the appearances they present; but as a disease in different stages may take on different appearances, so what was one disease in one stage is by this system called by quite a different name in another stage. The natural arrangement was introduced by a dermatologist named Alibert, but it has not been generally adopted. A pathological classification has been introduced, based on the morbid lesions the disease has been supposed to give rise to. Mr. Erasmus Wilson divides the diseases of the skin into those affecting the general and those affecting the special structures. A system has been prepared for the classification of cutaneous disorders (and which I propose to adopt in

this paper, on account of its simplicity), of bringing them all under two heads—contagious and non-contagious—and then sub-dividing them according to their causes. Before going into the special nature of the three complaints that I propose to bring under notice, it may be as well to say a few words on the general principles of diagnosis, treatment, and prevention of these diseases, and then to deal with each malady separately, and, under its own head, to give the causes, special treatment, etc.

Dogs are usually brought under the notice of the practitioner, said to be suffering from "Mange" or "Surfeit." It is usually stated, on inquiring into the history of the case, that the dog has been suffering for some time, scratching himself, and that the coat has fallen off to a greater or less extent. The disease is generally also more or less complicated by the injury the dog inflicts on himself in scratching and biting; indeed, frequently this almost obliterates the original lesion. A dog suspected of having a skin disease should always be examined by daylight. First notice the condition of the hair—whether it is matted together, and if much has fallen off. If it seems brittle in texture, and has broken off short, then the presence of a vegetable parasite may be suspected. Next observe the degree of irritation there is in the skin. This may be determined by the dog scratching, or, if the skin is sore, shaking himself; but if this is not observed, it may be often excited by placing the animal in a warm situation, when the heat will cause the parasites to commence moving, and so irritate the skin; or another plan is to scratch the back gently with the fingers, when the animal will respond to the motion, and evince satisfaction. Observe whether the skin is dry or moist; if the latter, whether it is with serum or pus; whether it is thick or tender, denuded of the epidermis, or covered with horny scabs—which condition in some forms of Eczema becomes chronic. In making this examination it is, however, necessary to distinguish between any lesions caused by the disease, and injuries inflicted by the animal on himself; and it should also be borne in mind, as it is a fruitful source of error, that more than one disease can exist in the same animal at the same time.

A mistaken notion has arisen amongst some people that the

disease is implanted in the system, and after a lapse of time cannot be eradicated. This is, of course, true in chronic cases, but it nevertheless has been the death-warrant of many valuable animals.

The methods of treatment are divided into systematic and local. Amongst the first, purgatives are probably the most important; but with our canine patients we have a valuable remedy that is not so readily at command with our larger ones—viz., the bath. Baths are described by writers on human medicine as hot, cold, and tepid; but for veterinary practice the latter, or about 60° Fahr., will be found the best. After giving a dog a bath, care must be taken to dry the animal well, and to put him in a clean warm place. Soft soap is the best material used, and it should be applied with a soft nail brush. Washing will frequently materially assist the diagnosis, especially if the coat is matted together and dirty, with masses of scabs adhering; and it is always necessary, before applying an ointment or dressing, to break up the crust that forms, so as to allow the application to have full power to act, and to remove the remains of any former dressing.

There are a variety of dressings—some very good, and others more or less objectionable. No application (and this especially applies to pet house-dogs) ought to be poisonous; it should be free from smell, should not alter the colour or texture of the coat, and be completely dissolved in the medium through which it is applied. If possible, it should not be of a greasy or oily nature; but, of course, in out-door dogs and hounds this nicety need not be closely observed.

Contagious diseases are all due to the presence of parasites, in or upon the skin or its appendages. These parasities are of two classes—viz., those belonging to the animal, and those belonging to the vegetable kingdom. The former are termed *dermatozoa*, and the latter *dermatophyta*. The dermatozoa that are capable of giving rise to evil consequences in the dog are four in number,—the *Sarcoptes*, *Dermodectes*, *Symbiotes*, and *Acaris folliculorum*, belonging to the order of the *Arachnidæ*; together with fleas, ticks, and lice, which, although they give rise to no special disease, yet, as we are often called upon to treat

animals suffering from them, are worthy of notice. Of vegetable parasites, causing what is commonly known as "ringworm," there are two in number. They belong to the lowest order of plants, viz., the *fungi* or *cryptogamia*. They are composed of simple spores or cells, placed together side by side or end to end: they are the *Alopecia circumscripta*, forming the *tinea tonsurans*, or ringworm; and the *Achorion Schonleinii*, causing the favus, honeycomb ringworm, or scald head. There is also another form of ringworm—the *Herpes circinatus;* but this is simply a vesicular eruption, and is not caused by a parasite. Lice, ticks, and fleas, though they may be got rid of with a little trouble and attention to cleanliness, are nevertheless of sufficient importance, while they infest the animal, to merit notice; and effectual measures must be had recourse to, not only to exterminate them, but also to guard against another attack.

Non-Contagious Diseases are never caused by the presence of parasites. They may be due to general, special, or external and internal causes; but whichever cause it may be, the direct consequence is inflammation in a more or less modified degree, and with more or less modified results, according to the existing cause. Mr. Erasmus Wilson, speaking on this subject, says: "A simple inflammation being capable of and active in producing the several morbid conditions of the skin, we are not surprised to find that they are mutually convertible, and that an erythema, for example, may become a lichen by the development of pimples, an eczema by the evolution of vesicles, or an impetigo by the production of pustules. In the same manner, the pimples of the lichen having subsided, the lymph or ichor of eczema being dried up, and the pus of impetigo exfoliated in crusts, there may remain behind a chronic erythema, to which another term—namely psoriasis—has been applied. Therefore in essential nature, erythema, lichen, eczema, impetigo, and psoriasis, are simply modified manifestations of inflammation of the skin, corresponding with recognised stages of common inflammation; the modifications resulting from intensity, cause, and idiosyncrasy—in other words, from accidental causes." From these remarks it may be seen that the root of the non-contagious skin diseases is inflammation, but so altered into

different phases by accidental circumstances as to cause the various appearances of the skin with which we are familiar. This class of disease is more amenable to internal or systemic remedies than the contagious or parasitic class. The most valuable medicines for these complaints are purgatives—such as castor oil, syrup of senna, or buckthorn. A very convenient form is a coated pill prepared by Capt. Russell, M.R.C.V.S., of Grantham, of which the following is the formula :—Powdered jalap 2 grains, calomel 1 grain, scammonii 1 grain, powdered Barbadoes aloes 1 grain, powdered ginger 1 grain; add excipient 10 grains: one or two to be given, according to the size of the dog. The efficacy of this pill I can vouch for, having used it frequently. Sulphur is also a valuable laxative, and can easily be given in the water. When an animal is in very high and gross condition, a purgative seems to work wonders, if combined with a judicious alteration in the food, both in quantity and quality; especially is this the case with pet dogs. If, however, the animal is low in condition, and weak from the effects of the disorder, a course of tonics, such as sulphate of iron, or sulphate of quinine, should be had recourse to, together with a liberal but not excessive diet. The *liquor arsenicalis* is recommended by some practitioners, in cases of excessive congestion and irritation of the skin.

Scabies, or true Mange, is caused by the burrowing in the skin of the *Sarcoptes canis*, or Mange mite, producing irritation, suppuration, ulceration, and the formation of crusts on the surface of the body.

The natural history of the family of acari is very remarkable, as they attack every mammalian animal from man downwards, with, perhaps, the exception of those living in the water; and it is even doubtful if these escape, as there is a specimen in the Royal Veterinary College museum of a louse that infests the whale. It is also a remarkable fact that, although the acari can be transplanted from one animal to another, yet on their new host they are unable to multiply; so that on their death the host is free from disease. But although the acarus is unable to reproduce its species, yet on the new host coming in contact with an animal of the original species, it is there capable o

taking up its abode, and producing disease. In this manner shepherds and shepherds' dogs, although not suffering themselves from Scabies, may be the means of spreading it amongst the sheep, acting as intermediate bearers between a diseased sheep and a healthy one. Animals, however, of the same genus, although of different species, may become infected, and propagate the disease from one to another.

Gerlach describes the parasite as belonging to the class *Arachnidæ*, order *acari*, family *Sarcoptes;* and he divides them into three genera: *Sarcoptes*, that burrow; *Dermatodectes*, that bite and hold on to the skin; and *Symbiotes*, living together in groups, and not going deeper than the epidermis. He also makes some remarks with reference to the geographical distribution of the Mange insect, which run thus: "The Itch and Mange insects are met with in both cold and hot climates; but it appears that the Itch is most rife in southern regions, though, as regards 'Mange,' this has not been established. It is not probable that there is a real geographical limitation in the spread of these parasites, their spread depends on so many causes—such as habits, customs, methods of living, state of cultivation, rearing of animals, sanitary laws, and the method in which these are enforced. There are certain forms of parasites imported into a district where, under certain circumstances, they may readily remain stationary, without genuine development from any determined local condition depending on the position or otherwise of the locality; in this way there are certain geographical Itch and Mange stations, and in some territories both may be seen; whereas in others, or in large cities, in some parts there is one form of insect, and another elsewhere. Of the Mange insects, that of the sheep and the horse are most widely spread. Poland would appear to be a geographical station for all the mite tribe,—at least for the Mange insects; and from them several invasions of these parasites occur in our own land (Germany). In Berlin the Dog Mange is stationary; in Westphalia the Mange in cats; in France the Scab in sheep; and in Switzerland the Scab in goats,—which, at all events in North Germany, does not exist. The acari are not immediately and essentially affected by meteorological changes, as they live

on living creatures. We cannot therefore, as for other insects, speak of productive and unproductive seasons; and the scarcity of Mange in certain years can be attributed as little to changes in the weather, vegetation, etc., as the spread of plagues or epizoötics can be imputed to diet, pasturage, etc.

The *Sarcoptes canis* is unisexual—that is, the sexes are separate, although the females are in much larger number than the males—it is said in the proportion of fifty to one. This great disproportion of numbers, however, is denied by some authors, who state that the males being small, and burrowing only in short galleries, do not produce such an irritation, and in consequence elude detection.

Bourgiunon thus describes the *Sarcoptes hominis*, or human Itch insect (and with the exception that the female is shorter and broader, the description answers for that of the dog): "The male is about one-third smaller than the female; he has suckers on two hind feet, and possesses on the abdominal surface genital organs, all of which characters are absent in the female. She, on the other hand, in addition to her size and the negative remarks alluded to, is characterized by three kinds of horny spines scattered over her back. The suckers or ambulacria are organs of locomotion; the mandibles enable it to cut the epidermis, and extract fluid from the tissues, which passes through a delicate œsophagus, the termination of which is undetermined, the body being filled with an unorganized, very fine molecular pulp. A short delicate tube may be sometimes observed at the anus,—a supposed rectum. No respiratory apparatus has been discovered, although the creature may be seen to swallow minute bubbles of air, which pass down the œsophagus, and, like the nutritive juices, diffuse themselves throughout the interior; at all events, animal juices and air both seem necessary to the life of the acarus. One male is capable of fecundating a number of females, and does not die at once, as is the case with so great a number of insects. The female, when impregnated, burrows under the scales of the epidermis in some suitable spot. The tunnel that she forms runs obliquely in the skin. In this tunnel she lays her eggs, depositing one, and then burrowing on and laying another, until the process of parturition is complete,

when she dies at the blind end of the tunnel, her life extending over the period of about four or five weeks. The eggs are brought to the surface on the growth and wearing away of the epidermis; by this provision those that are laid last being exposed last. The period of incubation of the young acari has been variously stated at from ten to fifteen days; but Gerlach, referring to the *Sarcoptes hominis*, or Itch insects of man, gives some experiments, in which he proves that three days is the incubative period. He carried some eggs in a depression in a glass slide covered with another glass, bound round his arm, and found the eggs were hatched in about three days. Whether this is the case with the *Sarcoptes canis* or not, I am unable to state, as I cannot find any experiments on the subject recorded anywhere. The young acari, when they come on the surface of the skin, are said to change their skins three times before they arrive at maturity, when they enter into sexual intercourse—the female burrowing and laying her eggs in the manner described. If the acari are removed from the skin, they seem to dry up and die from want of moisture, rather than from starvation; but they have been known to be revived by a moist heat after having been seemingly dead for fourteen days. Walz, some years ago, made some experiments with reference to the destructive power of different chemical agents on these creatures, by adding some of the agent, and watching the effects through a microscope. Hertwig also made some further researches, the results of which are given in the annexed table.

Agent.	Died in hours.	Died in minutes.
Creosote	—	$\frac{1}{4}$—$\frac{1}{2}$
Tincture iodine, pure	—	1—2
Tincture iodine and water, 1—4	—	4—6
Iodide potassium and water, 1—2	—	9
Caustic potash and water, 1—24	—	2—2$\frac{1}{4}$
Sulphuret of potassium and water, 1—10	—	15—30
„ „ and oil, 1—10	10—20	—
Chloride of lime and water, 1—30	—	15—30
Oil of turpentine	—	5—9
Barbadoes tar	—	5—9
Pix liquida	—	8—13

Agent.	Died in hours.	Died in minutes.
Acetic acid and water, *ā ā*	— . .	2—
Concentrated sulphuric acid and water, 1—48	— . .	32—35
Decoction of tobacco, 1—5 . . .	— . .	10—20
„ „ 1—10 . . .	2—5 . .	—
„ „ 1—50 . . .	4—10 . .	—
Saturated solution of arsenic . . .	2—3 . .	—
Liquor ammonia, fort.	¼—1 . .	—
Corrosive sublimate solution, 10 grains to the oz.	— . .	15—45

From this it will be seen that the vitality of these creatures is very great, living for a long time in solutions of most powerful drugs. Creosote will therefore be found to be the most active agent in their destruction, but it is open to the objection that it is liable to discolour and alter the texture of the coat, particularly in white dogs.

(*To be continued.*)

OBSERVATIONS ON UNILATERAL PARALYSIS OF THE FACE IN THE HORSE.

In a little work published in 1875 at Bologna, by L. A. Gotti, extra-clinical professor at the University of that city, we have some observations with regard to Facial Paralysis in the horse which merit attention. Professor Gotti had, in the course of six years, met with many cases of this description, and in making a necroscopical examination of three of these, he discovered anatomical lesions which he considers give rise to the symptoms during life. In the first case, the paralysed muscles were pale, and the nerves supplying them yellow in colour, with adipose infiltration in both. In the second case, a bony tumour was compressing the facial nerve in the tympanic canal; and in the third, a fibrous tumour compressed the roots of the seventh and eighth pairs of nerves. In a fourth instance, the Paralysis was evidently due to inflammatory tumefaction, resulting from an injury on the course of the masseteric branch of the facial nerve; in a fifth, there was ulceration of the cheek induced by a distorted tooth; and in the sixth, the malady appeared as the sequel of a Hæmorrhagic Typhohæmia.

Editorial.

PROHIBITION OF CATTLE IMPORTATION INTO AUSTRALIA.

In the *Veterinary Journal* for January, 1877, when alluding to the proposal to establish a Veterinary School in Melbourne, we urged the necessity for this step, in view of the great benefits it might be made to confer on the Colony, provided the school was commenced and maintained—not as a private or subscribers' establishment, but as a public institution. In remarking on this subject, we referred to the serious losses inflicted by various diseases among the colonial live stock, and to the dread that prevailed as to the possible introduction of contagious disorders from without—dread that had given rise to panic, which had led to a total prohibition of importation—to a kind of unreasonable and unreasoning protection, in fact. We also asserted that this prohibition would undoubtedly react most injuriously upon the Colony, and to a great extent frustrate the objects of those who were endeavouring, and with so much success, to improve the quality of stock. Since we drew attention to the subject, its importance has been fully recognised in Australia, and the propriety of continuing the absolute prohibition, or allowing the importation of valuable animals under certain conditions and precautions, has been much discussed.

The result would appear to be that the Colony is, on the whole, favourable to the latter course; and there can be no doubt that in this decision it is justified by every consideration worthy of notice. The opponents of this course seem to have borrowed some very extraordinary arguments to sustain their prohibition policy; and one of these is based on the notion that improvement in stock can be effected without having recourse to the best herds or flocks of countries which breed to the greatest perfection.

The chief advocate for total prohibition is Mr. Curr—an inspector of stock, we believe, for the Melbourne district—who recently read a paper in support of his views. We have carefully perused this paper, and we quite agree with Mr. Bruce, another inspector of stock, and whose name is familiar to us as an excellent authority on the prevention of contagious diseases in stock, that Mr. Curr's views with regard to the Colony not requiring the introduction of animals to improve the native breeds, are "unsound, visionary, and impracticable," while the system he recommends would be "exceedingly tedious, costly, and unprofitable." With regard to the dangers of importation, Mr. Curr has greatly exaggerated them, so far as Australia is concerned; and in order to support his arguments, we regret to notice that he has very unfairly quoted from "Veterinary Sanitary Science and Police"—selecting only those portions which suited his purpose, and omitting other portions which qualified those quoted, or put the points in question in antagonism to his views. In the number of the *Journal* referred to, we ventured to express the opinion that "with a proper system of inspection and quarantine, and thoroughly trained veterinarians, there is no need for

the severe and damaging measure which these alarmists have succeeded in imposing upon their country. . . . Australia can now be in possession of all the information Europe affords, with regard to contagious diseases." This opinion we still entertain; and we consider that, provided sufficient precautionary measures are adopted, and carried into operation by competent veterinarians, Australia, from her geographical position, and the circumstance that she will only import the best and most valuable stock, and therefore that which is least exposed to contagion, will be short-sighted indeed, and suffer in consequence, if she accepts the advice of those who would have her ports closed to the admission of animals which are so necessary in perfecting one of her principal sources of wealth, present and prospective.

In "Veterinary Sanitary Science and Police," the measures necessary for protecting a country from the invasion of contagious maladies have been described in detail, and we are satisfied as to their efficacy. Mr. Bruce, in an able and well-written letter addressed to the Chairman of the Executive Committee, Agricultural Society of New South Wales, has somewhat improved upon these measures, and made them specially applicable to the case of the Australian Colonies. If these are carefully carried out in their integrity, then these Colonies should reap all the advantages of judicious importation, and without risk.

ON ANTHRAX.

PROFESSOR SIEDAMGROTZKY, of the Dresden Veterinary School, in a communication on "Milzbrand" (*Deutsche Zeitschrift für Thiermedicin*, Ersten Bandes, Viertes Heft), states that some time ago he devoted himself to researches and experiments as to the nature and properties of the Anthrax bakteria, or "rods" (*Milzbrandstäbchen*). Though his researches did not carry him so far as he desired, yet, as their results have been corroborated either wholly or in part by other investigators, he now brings them forward as offering much that is interesting to the pathologist.

The material for his experiments was furnished, at different times, by the district veterinary surgeons, Franze, Peschel, and Johne: it consisted of blood or a portion of spleen, from oxen which had been attacked by the disease in the surrounding localities. The principal experiments consisted in inoculating a sheep, five pigs, and fifteen rabbits. With regard to the Anthrax rods, the result of the experiments proved that during the life of the inoculated animal they were found in the blood only in certain instances, and then only singly; but, on the other hand, they were constantly present, though in variable numbers, in the inoculation carbuncle; and, besides, in some cases after death they could not be discovered in the blood, but always in the spleen. To this fact must be added another, indicated by Bollinger—that near the rods, and perhaps in variable number, there form, at the point of inoculation, as well as in the blood during life and after death, what that authority has designated "bakteria germs" (*Bakterienkeime*).

With regard to the characteristic features of the Anthrax bakteria, and as proof of the correctness of Bollinger's statements,* Siedamgrotzky observed them as fine bodies in the form of rods, either straight or bent at obtuse angles, and always motionless. Their length varies considerably: in the

* "Zur Pathologie des Milzbrandes," Munchen, 1872.

blood they measure 0·004 to 0·018 millimetre in length, but in the spleen they are somewhat longer. The largest are found in the inoculation carbuncle, where they measure as much 0·045 millimetre long. They are jointed, so that their outline is irregular; each rod appears made up of segments, every one of these being short and cylindrical, and about half as long again as it is broad; the end cylinders only in each rod look shorter and rounder. In well-developed rods the junction of these segments is not difficult to make out, and it is made more distinct after soaking them in water, as recommended by Bollinger. The "bakteria germs" are so small that they cannot be measured; they are round, very rarely oblong bodies, and have no apparent independent motion. With regard to the behaviour of bakteria and bakteria germs when submitted to the action of various reagents, Siedamgrotzky refers those who are more particularly interested in the subject to Bollinger's articles.

The attempts to isolate the Anthrax bakteria failed in the hands of Siedamgrotzky, as with other investigators. In filtering Anthrax blood, which had been mixed with salt, through four layers of Swedish filtering-paper, it was found that the bakteria passed through quite readily. Experiments to test the presence of bakteria at different strata of the fluid (*Senkungsversuche*), also remained without substantial results. In these Anthrax blood was mixed with water or a solution of common salt, well shaken in small glass tubes, and then allowed to stand for two or more days. The greater part of the bakteria sank to the bottom, but with care in the use of the pipette one could always find in the superficial stratum of fluid single bakteria, and colourless blood-corpuscles surrounded by bakteria germs. In four double experiments, in which one animal was inoculated with the upper and another with the lower stratum, two (rabbits and pigs) gave no results at all; in one experiment (rabbit) the disease was induced after inoculation with the lower stratum, whilst the animal which was inoculated with the upper stratum remained healthy. In the fourth experiment (pigs) one animal inoculated with the upper stratum succumbed. These experiments must therefore be regarded as unsuccessful, as more than one-half of them had no result, and in favourable circumstances they only gave negative evidence. They would merely go to prove that the Anthrax contagium is insoluble, and molecular in its nature. The practical proof that Anthrax virus is represented by the bakteria, may still be surmised. Owing to the failure of these isolated experiments, Siedamgrotzky thinks it would be better in all cases to furnish the proof of casual relationship between bakteria and Anthrax, through the progress in development and the physiological action of these bodies. For this reason attention was directed to the following points, and particularly to the relation of the bakteria with the inoculated part.

If Anthrax blood is introduced into the skin of a rabbit or pig by a small incision that reaches only to the cutis, in the course of twenty-four hours there appears great redness at the spot, with increased warmth and tumefaction of the skin and its connective tissue to a depth of from one to three centimetres. This tumefaction extends and increases progressively in depth, until in forty-eight hours it reaches to four or five centimetres; on the third day, if death has not taken place, it is often twenty centimetres. The great redness and heat of the skin is manifested most markedly at the place where the Anthrax blood was applied; the extension of the process occurs essentially in the connective tissue, though it does not take place equally in every direction there, but chiefly along the track of the lymphatic vessels. If the inoculation is made, for instance, at the posterior region of the chest-wall, the tumefaction increases principally towards the scapula, and extends beneath it as far as the entrance to the thorax, as an examination after death reveals. If this swelling is incised, a considerable quantity of pale-

yellow serum can be readily pressed out; this fluid is mixed with a little blood only at the point of inoculation.

So early as twenty-four hours after inoculation, bakteria can be perceived in the carbuncle,—although only at the distance of about five millimetres from the point of insertion of the virus, not at the periphery of the swelling. A similar relation is also observed in the further development of the inoculation carbuncle; the extension of the bakteria is not in proportion to that of the swelling.

One can always conclude as to the insuccess of an inoculation, by the non-appearance of the bakteria. It was only when Anthrax blood was injected into the subcutaneous connective-tissue that death ensued in the form of Splenic Fever—without, however, bakteria being discovered at the place of injection in every instance. The number of bakteria in the blood serum alone is not at all excessive; but forty-eight hours after inoculation, if a little of the scanty fluid is pressed out by the fingers, and removed with the back of a knife from the wound in the skin, a great quantity, sometimes even agglomerations, of "rods" will be discovered in it. Siedamgrotzky found in a rabbit a sausage-shaped mass, looking as if it had been moulded in a vessel, and measuring 0·3 millimetre long by 0·08 wide, which consisted entirely of "rods" matted together, with bakteria germs strewed between.

If the "rods" are only in moderate quantity in the inoculation carbuncle, or even if they appear to be absent twenty-four hours after inoculation, one always nevertheless finds the "bakteria-germs." According to Siedamgrotzky's observations, these are minute ball-like forms which swim freely about in the fluid; they are not numerous nor very conspicuous, and unless very great care be taken, they are liable to be obscured by external matters introduced into the fluid by coarse manipulation. Particular amœboidean cells are not unfrequently met with, on the surface of which are observed, by close microscopical inspection, very minute and somewhat pointed round protuberances; these are best distinguished on the circumference of the cell, as on the under or upper surface it is difficult to satisfy oneself of their existence. These resist the action of soda solution and ether, and are distinguished by their outline, as well as by the sharply-defined, dark-bordered fat globules, and the albuminoid granules intermixed—granules margined by matter which is sometimes noted in the amœboid cells found in emaciated rabbits.

If it is advanced that bakteria-germs preferentially attach themselves to the white blood-globules, this surmise will be further confirmed by the fact that, now and again, these globules are found to be star-shaped (*Morgensternähnlich*), and furnished with fine points, the delicateness of which distinguishes them at once from the thick protoplasmic protuberances; from the appearance of these, one is driven to the conclusion that they can be nothing else than young, short, Anthrax bakteria, derived from the bakteria germs. This peculiarity can be observed after nearly every inoculation; and Professor Leisering and two others, belonging to the same school, were able to convince themselves of its reality. The annexed figure gives a representation of an amœboid cell, such as is referred to by Siedamgrotzky. Bollinger's researches also support these facts, though he opposes the views held by Siedamgrotzky; and they throw a strong light upon the formation of the "rods" and "bakteria-germs," of which these blood preparations are intrinsically composed. Besides which, they prove that the "bakteria germs" utilise the white corpuscles as settlements upon which they not only fasten themselves, and with which they are conveyed into the blood from the place of inoculation, but also as agents which will carry them into those parts where they can most readily

FIG. 1.

undergo their further development into "rods." Additional proof is afforded by the fact that similar forms (bakteria-infested white globules) are apparent in the spleen and lymphatic glands, as well as not only rods almost constantly, but also an abundance of unmistakable fungus layers enveloping one or more white globules.

The further invasion of the bakteria-germs after inoculation, appears to be promoted chiefly through the lymphatic vessels; as the resulting tumefaction is always in the direction of these, and independently of the bloodvessels of the part inoculated. In the latter, Siedamgrotzky was never successful in finding any considerable number of bakteria after the death of the animal experimented upon; they were, when present, certainly never in agglomerations, though the fluid expressed from the subcutaneous connective-tissue contained these in abundance, and in one instance the sausage-shaped fungus mass already alluded to. He remarks that possibly, in future experiments, it may be more clearly shown that it is the lymphatic vessels which are instrumental in the reception of the bakteria germs.

To investigate the further development of the bakteria in the blood appears to be a very difficult task. The rods in general first appear only a few hours before death, and that never takes place in less than twenty-four hours. They then appear in very small number, and always singly. It is the same with the bakteria-germs, which, when in isolated particles, are very liable to be mistaken for extraneous matter. It is easier to determine the white globules in possession of the bakteria; though Siedamgrotzky could never succeed in finding such-like amœboid cells in which the further development of the rods could be studied. From his insuccess, he was almost forced to the conclusion that the Anthrax bakteria, as well as the colourless blood-globules occupied by the bakteria-germs, remain adhering to the filter-meshes (*Filterwerk*) of the spleen, and from thence through every other part achieve their later development.

As Bollinger already mentions, it appears that the development of the "rods" takes place rapidly; and one always finds more bakteria-germs when the autopsy is made twenty-four hours after death, than immediately subsequent to that event. In a particular blood preparation, it happened to Siedamgrotzky, as it had before done to Bollinger, that he was able to watch the development of the "rods" on the object-glass; these were, however, remarkably short. In two other experiments no augmentation could be observed, neither could any increase of "rods" be noticed when, to the serum of fresh blood, a drop of Anthrax blood containing bakteria-germs was added.

Siedamgrotzky's experiments further demonstrate that the Anthrax bakteria become broken up and disappear, so soon as decomposition bakteria begin to show themselves. With regard to the vitality of the Anthrax bakteria, Siedamgrotzky found that, even in winter, infected blood kept in a cold room for seven days had lost its potency when inoculated, and the specific bakteria had disappeared.

With regard to the mechanical action of the Anthrax bakteria in these experiments, no proof whatever could be established. To discover whether any mechanical effect was really exerted by these bodies, the bloodvessels were most minutely examined after death, and especially those at the point of inoculation, as well as those of the brain, medulla oblongata, and mesentery; but never could anything of an agglomeration of bakteria be discovered. The veins were always found irregularly widened, and at times they contained single clusters of colourless corpuscles, which, however, never choked up the vessels. From this it appears that the mechanical action of the bakteria by obstruction of the vessels is merely accidental, not essential. And certainly the hæmorrhages which are so frequent in Anthrax are neither constantly present (they were often absent in Siedamgrotzky's experiments), nor can they

always be accounted for when present by obstruction in the vessels only. It is much more probable that some chemical product alters the wall of the vessels, and the viscosity of the red globules increasing, the occurrence of hæmorrhage is thereby favoured. Against the notion that the mechanical action of the bakteria produce this result, must be placed the fact that these particles are proportionately few in the living blood. If the number supposed by Davaine to be present is near the truth (eight to ten millions in a drop of blood), then we must confess that great exaggeration has prevailed in a number of cases. It must also be remembered that the bakteria can always, at least singly, pass through the capillaries. So long as the blood circulates, agglomeration cannot take place among them ; masses of bakteria, if they chanced to occur, would be as easily destroyed as they are on the object glass by the removal of the blood globules.

With regard to the hypothesis that the Anthrax bakteria produce something which has a chemical influence on the body of animals, the following long-known facts, which receive additional proof from Siedamgrotzky's experiments, may be adduced as evidence. When Anthrax blood is inoculated in the texture of the skin, certain effects follow in the form of inflammatory swelling. This tumefaction has no relation, so far as extent is concerned, to the quantity of bakteria and bakteria germs ; and the presence of these alone cannot account for this result : so that one may surmise the production of some chemical matter which circulates more quickly in the lymph-paths of the connective tissue than the bakteria. Further, one observes the increase of temperature in rabbits at least twenty-four hours after inoculation ; whereas the bakteria are usually found in the blood only a short time before death, when the temperature is most frequently sinking.

DOG-POISON IN MAN.

BY DR. ACLAND, REGIUS PROFESSOR OF MEDICINE IN THE OXFORD UNIVERSITY.

(*The Contemporary Review* for January, 1878.)

PERIODICAL literature has developed one great change in modern life—that there is no subject too technical, none too professional, to be brought before the general reader. As regards medical questions, the great surgeon, Brodie, and the Nestor of English medicine, Sir Thomas Watson, led the way.

The subject of the present paper—that of the mode of working in man of poison from a mad dog—has one advantage : that it well illustrates the importance of viewing biological studies as a whole, and shows that human and comparative pathology are inseparable.

Let us consider what Hydrophobia is, and how it comes to exist : 1. How it acts ; 2. How it is spread ; 3. How it is to be prevented.

We must look at these from a general rather than from a medical point of view.

Hydrophobia, as all know, is the result of an animal poison operating on man. What does this mean ? What are animal poisons ? Whence do they come ? How do they operate ?

The subject of animal poisons is one of strange—nay, of fascinating interest. It is so extensive that, if pursued in detail, it would wholly exhaust the patience of any that had not a special purpose in following it through its manifold particulars. Some idea of it, however, may be easily gained.

We are each of us constructed on a definite plan, the outcome of we know

not how many myriads of ages operating under definite conditions by regular laws. We have a certain form which varies according to the race from which we spring. We are composed of matter much the same in every human being, and little varying in all animal life endued with the higher kinds of consciousness. The fish, the reptile, the bird, the gentle quadruped that culls the living herb, the fierce brute that spreads terror and death, whether for sustenance or delight, all have a structural kinship with ourselves. We are but a part of a vast army of living things, living in the warmth of one life-sustaining fire, breathing the same air, imbibing the same moisture, obeying the same physical attractions, building in and in the same chemical elements, growing a kindred growth, deploying for a time the same animal forces, dying the same death, disintegrated by the same physical decomposition, returning to the same air, and water, and dust.

How strange, then, that this family, so knit up, should find in itself members whose function should seem to be that of bringing instant destruction to those about them, for no purpose that we can see—neither for self-defence nor for self-maintenance by way of food! It is as though there were set in the eternal order of things, somewhere in the animal series, a terrible material contrast with the heavenward aspirations of the soul of man.

Poisons, no doubt, surround us. We have heard enough of late of poisoning air, poisoning water, poisoning food, poisoning soil. The marvel is that animals exist who themselves generate them for the sake of poisoning.

Since much of the poison which surrounds us is created by ourselves, its origin may be to a great extent prevented by ourselves. But the growth of some poisons is beyond control, except by the destruction of the grower; for instance, the poison of snakes. This is the simplest case of an animal communicable poison. No manner of life, nor self-discipline, could hinder the snake from manufacturing his deadly dynamite, or from using it when manufactured.

How, then, does this typical animal poison act so as to produce its terrible results? "Snake-poison," says Sir Joseph Fayrer, "is essentially a neurotic; and, when it takes full effect, kills by annihilating the source of nerve force in ways which bid fair to be elucidated by modern investigation."

To illustrate this, I quote from that scientific surgeon and accomplished physiological inquirer the following typical case:—

"Lotawon Chumar, aged fifty years, was bitten on August 7th, 1870, under the following circumstances. He was sleeping in a poultry-yard in Benares, when he was suddenly awoke by a great noise among the fowls at 4 a.m., and, whilst moving about to ascertain the cause, was bitten by something that he did not see, as it was dark,—he suspected it was a snake. When daylight appeared he found a fowl lying dead, and he then himself began to feel ill; a little later he became insensible, and unable to stand. The only mark of injury was a black spot near the ankle joint. The wound was incised, and liquor ammoniæ applied to it, and also administered internally every fifteen minutes; twenty drops with water, equal parts, were injected under the skin, but he never rallied, and died half an hour after admission." *

Another instance, quite as characteristic of life among our native brethren in India, is worth perusal:—

"Information was received, at 6 p.m. of November 21st, that a native boy, name and residence unknown, had died from the effects of snake-bite. It appears that the deceased had been on the Diamond Harbour Road, and, near the house of the informant, had gone into the jungle, having previously laid down on the roadside *a basket containing a snake* and some other things used by snake charmers. He returned in a few minutes, and was observed

* Fayrer: "Thanatophidia of India," p. 58.

to be rubbing his right with his left hand ; on being questioned as to what was the matter, as he looked as though he was suffering, he said he had a burning sensation all over his body, and shortly after he fell down and died. *He had*, while in the jungle, *met with a snake* (the kind he did not mention), and, *on trying to catch it*, it bit him on the back of his right hand. . . . The precise time between the bite and the death is not known, but it could not have been more than from fifteen to twenty minutes, from the account I received of the circumstances of the case." †

The effect of virulent snake-poison—as, for instance, that of the cobra—is produced, first, by its introduction into the blood ; second, by affecting the nerves either at their periphery, or along their course, or at their centre. Depression and faintness are the first result ; then loss of co-ordinating power ; then paralysis, convulsions, and asphyxia. ‡

It would seem, by various experiments and observations on cobra-poisoned animals and men, that the motor-nerves alone, or the spinal cord, or the brain, may be each separately affected, or any combination of them.

Fayrer quotes Genesis xlix. 17, where Jacob says, "Dan is an adder in the path, that biteth the horse heels, so that his rider falleth backward" —*i.e.*, produces instant paralysis of the hinder limbs. This snake-poison is the simplest, deadliest, most natural, healthy poison.

The poison created by the dog, our companion and friend, is in another category. It is not natural to him. He is himself a victim. The poison he transmits he has received. It works almost certainly his own destruction. He spreads it without intention. Man perhaps helps to cause it by his treatment of him. It is a consequence of his faithfulness, and of his domestic relations, and of his familiarity, that he inflicts the injury on his master. The Rabies, which is his torment and curse, brings about the Hydrophobia in his protector and guardian. It lies with man to save the dog from the sickness, which, once engendered, rebounds with terrible force on the human family.

Since the secreted poison which the dog emits when himself affected by Rabies does not produce on man the same results that it produces on the dog, it might be suspected that there is something wild and uncertain in the *modus operandi* of a poison. It is not so. It has been well said by a classical writer, that there are three prime laws of poisons :—

1. That all have certain definite and specific actions.
2. That they lie latent a certain but varying period of time before these actions are set up.
3. That the phenomena which result from the poison, when roused into action, vary according to the dose, and the condition or special character of the victim.

In illustration of these laws, we may cite, firstly, so familiar an instance as that Scarlet Fever poison will not produce Small-pox; secondly, that the effect may be latent only a moment (as in the poison of prussic acid, and the poison of the cobra) before the symptoms are set up ; or it may be latent for definite days, as in Measles ; or for uncertain weeks, months, or even *years*, as in Hydrophobia; and, thirdly, that temperament, state of health, mode of life, race, inheritance, of the animal, as well as the nature of the poison itself, produce remarkable variations in the action of some poisons.

What, then, is Canine Rabies ? and how does Rabies arise ? Probably never spontaneously, or, if it ever does so, certainly with extreme rarity. It is communicated from one rabid animal to another animal which becomes

† Fayrer : "Thanatophidia of India," p. 59.

‡ This is admirably described, and in the fullest manner, by Fayrer in the "Proceedings of the Royal Society," 1874, p. 3.

rabid. Whether it ever does originate except by communication is a question belonging to the interminable controversy of spontaneous generation.

I quote from Youatt a graphic description of Rabies in the dog :—

"The early symptoms of Rabies in the dog are occasionally very obscure. In the greater number of cases these are sullenness, fidgetiness, and continual shifting of posture. Where I have had opportunity, I have generally found these circumstances in regular succession. For several consecutive hours, perhaps, he retreats to his basket or his bed. He shows no disposition to bite, and he answers the call upon him laggardly. He is curled up, and his face is buried between his paws and his breast. At length he begins to be fidgety. He searches out new resting-places; but he very soon changes them for others. He takes again to his own bed; but he is continually shifting his posture. He begins to gaze strangely about him as he lies on his bed. His countenance is clouded and suspicious. He comes to one and another of the family, and he fixes on them a steadfast gaze, as if he would read their very thoughts. 'I feel strangely ill,' he seems to say: 'have you anything to do with it? or you? or you?' Has not a dog mind enough for this? If we have observed a rabid dog at the commencement of the disease, we have seen this to the very life.

"There is a species of dog—the small French poodle—the essence of whose character and constitution is fidgetiness or perpetual motion. If this dog has been bitten, and Rabies is about to establish itself, he is the most irritative, restless being that can be conceived: starting convulsively at the slightest sound; disposing of his bed in every direction; seeking out one retreat after another in order to rest his wearied frame, but quiet only for a moment in any one; and the motion of his limbs frequently simulating Chorea, and even Epilepsy. A peculiar delirium is an early symptom, and one that will never deceive. A young man had been bitten by one of his dogs; I was requested to meet a medical gentleman on the subject: I was a little behind my time. As I entered the room I found the dog eagerly devouring a pan of sopped bread. 'There is no madness here,' said the gentleman. He had scarcely spoken, when in a moment the dog quitted the sop, and, with a furious bark, sprang against the wall as if he would seize some imaginary object that he fancied was there. 'Did you see that?' was my reply: 'what do you think of it?' 'I see nothing in it,' was his retort; 'the dog heard some noise on the other side of the wall.' At my serious urging, however, he consented to excise the part. I procured a poor worthless cur, and got him bitten by this dog, and carried the disease from this dog to the third victim; they all became rabid one after the other, and there my experiment ended."*

And again:—

"A terrier, ten years old, had been ill, and refused all food for three days. On the fourth day he bit a cat of which he had been unusually fond, and he likewise bit three dogs. I was requested to see him. I found him loose in the kitchen, and at first refused to go in; but, after observing him for a minute or two, I thought that I might venture. He had a peculiarly wild and eager look, and turned sharply round at the least noise. He often watched the flight of some imaginary object, and pursued with the utmost fury every fly that he saw. He searchingly sniffed about the room, and examined my legs with an eagerness that made me absolutely tremble. His quarrel with the cat had been made up, and when he was not otherwise employed he was eagerly licking her and her kittens. In the excess or derangement of his fondness, he fairly rolled them from one end of the kitchen to another. With difficulty I induced his master to permit me to destroy him."*

* Youatt: "The Dog," p. 131.

No person of ordinary observation need be told that dogs, like little children, have all their personal characters, which they carry with them into their hours of sickness and suffering.

"It is not every dog that in the most aggravated state of the disease shows a disposition to bite. The finest Newfoundland dog that I ever saw became rabid. He had been bitten by a cur, and was supposed to have been thoroughly examined in the country. No wound, however, was found: the circumstance was almost forgotten, and he came up to the Metropolis with his master. He became dull, disinclined to play, and refused all food. He was continually watching imaginary objects, but he did not snap at them. There was no howl, nor any disposition to bite. He offered himself to be caressed, and *he was not satisfied except he was shaken by the paw.* On the second day I saw him. He watched every passing object with peculiar anxiety, and followed with deep attention the motions of a horse, his old acquaintance; but he made no effort to escape, nor evinced any disposition to do mischief. I went to him, and patted and coaxed him, and he told me, as plainly as looks and actions and a somewhat deepened whine could express it, how much he was gratified. I saw him on the third day. He was evidently dying. He could not crawl even to the door of his temporary kennel; *but he pushed forward his paw a little way, and, as I shook it, I felt the tetanic muscular action which accompanies the departure of life.*

"On the other hand, there are rabid dogs whose ferocity knows no bounds. If they are threatened with a stick, they fly at and seize it and furiously shake it. They are incessantly employed in darting to the end of their chain, and attempting to crush it with their teeth, and tearing to pieces their kennel, or the woodwork that is within their reach. They are regardless of pain. The canine teeth, the incisor teeth are torn away; yet, unwearied and insensible to suffering, they continue their efforts to escape. A dog was chained near a kitchen fire. He was incessant in his endeavours to escape, and, when he found that he could not effect it, he seized, in his impotent rage, the burning coals as they fell, and crushed them with his teeth.

"If by chance a dog in this state effects his escape, he wanders over the country bent on destruction. He attacks both the quadruped and the biped. He seeks the village street or the more crowded one of the town, and he suffers no dog to escape him. The horse is his frequent prey, and the human being is not always safe from his attack. A rabid dog running down Park Lane, in 1825, bit no fewer than five horses, and fully as many dogs. He was seen to steal treacherously upon some of its victims, and inflict the fatal wound. Sometimes he seeks the more distant pasturage. He gets among the sheep, and more than forty have been fatally inoculated in one night. A rabid dog attacked a herd of cows, and five-and-twenty of them fell victims. In July, 1813, a mad dog broke into the menagerie of the Duchess of York at Oatlands; and, although the palisades that divided the different compartments of the menagerie were fully six feet in height, and difficult or apparently almost impossible to climb, he was found asleep in one of them; and it was clearly ascertained that he had bitten at least ten of the dogs."*

How subtly and by what small change of circumstances results may be altered, the following will show:—

"There is a beautiful species of dog, often the inhabitant of the gentleman's stable—the Dalmatian or coach-dog. He has, perhaps, less affection for the human species than any other dog, except the greyhound and the bull-dog; he has less sagacity than most others, and certainly less courage. He is attached to the stable; he is the friend of the horse: they live under the same roof; they share the same bed; and, when the horse is summoned

* Youatt: "The Dog," pp. 140, 141.

to his work, the dog accompanies every step. They are certainly beautiful dogs, and it is pleasing to see the thousand expressions of friendship between them and the horse ; but, in their continual excursions through the streets, they are exposed to some danger, and particularly to that of being bitten by rabid dogs. It is a fearful business when this takes place. The coachman probably did not see the affray ; no suspicion has been excited. The horse rubs his muzzle on the dog, and the dog licks the face of the horse ; and in a great number of cases the disease is communicated from one to the other. The dog in process of time dies, the horse does not long survive, and frequently, too, *the coachman shares their fate.* I have known at least twenty horses destroyed in this way."*

Many cases of detailed history might be quoted from the vast literature of this subject—a literature, the extent of which, from Aristotle to Sir Thomas Watson, would surprise many. I would refer the reader to Youatt's charming book on the dog, and to the admirable and exhaustive writings of Fleming, the industrious advocate of the study of Comparative Pathology, whence I will give two passages that will show the havoc which may be caused, and how it is caused. And, first, by *one* dog :—

"If the mad dog is not confined in a cage, but kept in a room where there is more liberty, it wanders about in every direction, and with all the greater agitation if not accustomed to be separated from its human companions. It is continually on the move, and rambles, seeks, smells, howls at the walls, flies at the phantoms that seem to pursue it, gnaws at the bottoms of doors, and furniture, and may at last make an escape through glass doors or windows. If persons are only separated from it by glass, it does not hesitate to smash the fragile barrier—being all the more determined to get through it when excited by seeing them, and moved by the fatal desire to bite, which now entirely dominates it. The larger the obstacles the wilder its fury, and no sacrifice is too great to obtain liberty. House-dogs are trying every moment to escape from their dwelling ; and those which are kept tied up or shut in a room are constantly endeavouring to break their attachment, or to destroy the doors or partitions that confine them, in order to satisfy their longing to be at large.

"When a rabid dog makes its escape it goes freely forward, as if impelled by some irresisible force—travelling considerable distances in a short time, and attacking every living being it meets on its way ; preferring dogs, however, to other animals, and the latter rather than mankind. Cats also appear to be, next to dogs, most liable to be injured. A mad dog that had done a considerable amount of mischief in Lancashire, in 1869, was seen, in one part of its career, trotting along the road with a cat in its mouth, which it had picked up from a cottage, and which, some time afterwards, it dropped to attack a cow. Fowls, likewise, are particularly exposed to the assaults of the rabid dog. When it attacks, and endeavours to tear its victims, it does so in silence, never uttering a snarl or a cry of anger ; and should it chance to be injured in return, it emits no cry or yell of pain. Though it will not so readily assault mankind as it will other creatures, yet it is most prudent, when in the presence of a mad dog, to allow it to pass, instead of attacking it, unless there is a certainty of killing it without the risk of being wounded by its teeth. The degree of ferocity would appear to be influenced very much by the natural disposition of the dog, and the training it has received. Some, for instance, only snap or give a slight bite in passing ; while others, on the contrary, bite furiously and tear the objects presented to them or which they meet in their way, and sometimes with such an extreme degree of violence as to injure their mouths and break their teeth, or even their

* Youatt : "The Dog," p. 134.

jaws. If chained up, they will gnaw the chain until their teeth are worn away and the jawbones laid bare.

"The rabid dog does not continue its progress very long. Exhausted by fatigue, by the fits of madness excited in it by the objects it meets in its way, by hunger and thirst, and also, no doubt, as a consequence of the disease itself, its limbs soon become feeble. Then it slackens its rate of travelling, and walks unsteadily; its drooping tail, its head inclined towards the ground, the mouth open, and the protruded tongue of a lead-blue colour, and covered with dust,—all this gives the distressed creature a very striking and characteristic physiognomy. In this condition, however, it is much less to be dreaded than in its early fits of fury. If it is still bent on attacking, it is only when it meets with anything directly in its track that it seeks to satisfy its rage; but it is no longer sufficiently excitable to change its direction, or go out of its course to attack an animal or a man not immediately in its path. It is extremely probable, also, that its fast-failing vision and deadened scent prevent its being so easily impressed by surrounding objects as it previously was."*

The incident which is selected by Fleming concerning the Durham pack, though well known, is too instructive to be unnoticed:—

"For the last seven or eight years the Durham county hounds, under the management of a committee, have had Thomas Dowdswell, from Lord Macclesfield's, as their huntsman; and it is not too much to say that by careful breeding, with the advantage of some of the best blood, the pack has been brought to a state of perfection never surpassed since the time of Mr. Ralph Lambton, who for so many years hunted the country at present occupied by these unfortunate hounds. The pack of forty-one couples commenced the season under the most promising auspices, with a country well stocked with foxes, and every prospect of success; but—alas for men's calculations!—a check has come, and every hope apparently so well founded has been destroyed by a visitation as sudden as it was unexpected.

"About five weeks ago, after a very good and severe run, in breaking up their fox, Dowdswell observed a fine young hound called 'Carver,' by Lord Macclesfield's 'Foiler,' going from hound to hound in a very unusual manner. Taking alarm, he had the hound led home, and by direction kept confined in a place by himself for a few days, in order to prove the nature of the disease; it increased in intensity, and on the third day the dog was perfectly mad, biting and gnawing everything he could reach. Four hounds he had bitten previously were at once put down. . . . .

"A few days elapsed, and other hounds were seized in precisely the same manner all dying in about three or four days. As a rule the hounds so attacked were quite harmless, following the huntsman, and apparently grateful for anything done for them. The attacks continued, and some few began to show signs of Rabies. The general features of the disease were, however, what is generally called dumb madness, which beyond doubt is contagious in its character; and seeing that no hound, once attacked, ever recovered, the decision come to was to put them down immediately on the first appearance of the symptoms, in order to avoid infection.

"Up to last week about nine couples had been attacked and died, the disease still running on. Of course hunting was dropped; and the committee, feeling deeply their responsibility, called a meeting of the subscribers to take into consideration the proper course to be adopted under these painful circumstances.

"The question to be decided was, whether, looking at the danger to life, and the uncertainty as to any known mode of cure, the pack should be

* Fleming: "Rabies and Hydrophobia," pp. 227 30.

destroyed, or an attempt be made to stamp out the disease by isolating every hound. Up to Saturday it was thought the latter plan might be adopted and tried with safety; but the Monday morning's report showed the attack on several more hounds had assumed unmistakable symptoms of Rabies. This fact induced the meeting to come to a unanimous resolution: 'That it was a duty they owed to the country to sacrifice the whole of their gallant pack, and to appeal to masters of hounds for a few hounds to enable them to finish the season so disastrously cut short.' . . . .

"The remarkable feature in the history of the outbreak, however, consisted in the fact that *some drafts of the pack were sent to India* towards the end of July; and it was reported in Durham, at the commencement of December, that many of these had been attacked by a 'disease of the throat,' as the reporters termed it, and 'hanging of the lower jaw,' and that 'all died.'" *

Thus it is that fowls, cattle, horses, wild animals, and men are inoculated, and thus the virus is carried across Europe to the plains of India! We must apply to death brought about by Rabies the same general principles as to death from snake-bite; but in the one case the poison works its fatal end at once, in the other it may lie dormant for years. It lies dormant probably by being entangled at the head of the wound, and there held in its place till some new action liberates it, and lets it loose into the circulation,—the view advanced by Sir Thomas Watson some years since, and now also held by others.

We have briefly considered the effect of the poison of Rabies inflicted by one dog upon another, as well as the effect of virulent snake-poison inflicted on a man. It remains to compare the effects of the dog-poison upon a man with that of the cobra.

There are points of similarity and points of divergence.

The points of similarity are, first, that the poison, if allowed to enter the circulation in sufficient quantity, is uniformly fatal; and, secondly, that the fatal termination seems certainly to be by way of the nervous system.

We are not yet in a condition to say with absolute precision what are the anatomical changes in the nervous system, either in man or in animals not man. But observations are rapidly accumulating.† It is certain that in each case the injury arises from the introduction of the animal poison into the blood. In each case, therefore, the end can be averted only by keeping the poison out of the circulation; or, if in it (in a moderate quantity), *by maintaining life till it can be eliminated:* the way by which alone the Wourali can effect a cure; and this only if the poison has not wrought or set up changes destructive to the vitality or regenerative power of the nerve-elements.

The nervous symptoms in man, when once the poison has fairly entered the system, gradually increase, until thirst and inability to drink remove all doubt as to the only result. The inability to drink is only a sign of deep-seated changes in the nerve-structure.

Professor Rolleston has pointed out to me that these changes, though

* Fleming: "Rabies and Hydrophobia," pp. 65-7.

† Many persons are engaged in prosecuting researches into the actual alteration of structure which can be detected after death from Hydrophobia; among whom may be named Dr. Gowers, of University College Hospital, Dr. Greenfield, of St. Thomas's, and Dr. Savage, to whom I am indebted for valuable microscopic preparations. All available knowledge will shortly be collected, under the best auspices, by a committee of the British Medical Association, including Dr. Burdon Sanderson, Dr. Lauder Brunton, Dr. Gowers, Mr. Ernest Hart, and Mr. Callender. Whether the knowledge they will certainly gain as to the *modus operandi* of the poison, and the changes it effects in vessels and nerves, will help the cure when the changes have been set up, is in the womb of the future.

hardly discernible, may be so great (having regard to the actual character of the force-producing nerve-cell) as to explain entirely, first, the excitement, and, secondly, the destruction of the ordinary functions of the nerve-centres, which regulate life. In a paper to which the Professor has referred me, by Dr. Mayor, I find it noticed that "there may be differences between these delicate structures in man and other animals so slight as to be nearly inappreciable," but still differences of the widest significance and importance; and so it may quite be that fundamental changes shall take place by sudden shock or otherwise in the fine structures by which the nerve-force is developed in man, and yet the physical changes may be wholly outside the reach of our observation. It is right to add that already these changes have been observed by Dr. Gowers, though their exact import cannot yet be declared.

Hydrophobia occurring in man, after communication of the poison of Rabies, is thus shown to be a "toxoneurosis." It would not be desirable, nor would it be of any use in a paper of this kind, to enter into a detailed description of the symptoms of this mode of death.* I have thought it best rather to illustrate the character of the malady in other ways. We must admit that there is, as yet, no cure known for the disease when once established in man. The most extravagant remedies have been suggested. Every form of pharmacy and charlatanism has expended itself throughout all generations—advocated sometimes by otherwise great names. The pages of Cœlius Aurelianus, Morgagni, and a host of others would create considerable interest, and one may say even amazement, on this subject. The danger is generally preventable by prompt measures taken at the time when the injury is inflicted. The weight of evidence seems to show that the actual cautery is the most efficacious means, excision the next, and caustics, though sometimes sufficient, are the least to be relied upon. This much said, I must advert to statements in various journals to the effect that a case had been cured by means of Wourali poison by Dr. Offenburg. This is not the only case adduced. Another is reported from America, with an excellent but cautious commentary by a great American physician, Dr. Austin Flint.

With respect to Offenburg's case, I must own that from information I have received from Germany, through the kindness of Dr. Victor Carus, the distinguished Professor of Leipzig, I am by no means satisfied that it was a true case of developed Hydrophobia. Of this, as of the American case, I can only say that there is enough to justify and demand the trial of the remedy. Of all the efforts of scientific medicine, it would be one of the most remarkable should it turn out to be successful. The remedy itself is a terrible instrument, and requires the greatest skill in its use. That skill will not be wanting,—the result of trained powers in experiment.

Late one evening, a few weeks ago, a boy was brought to the Radcliffe Infirmary, Oxford, with the dread, if not with the signs, of Hydrophobia. He had been bitten by a dog, five years before, in the hand, and again, two years before, in the leg. A pustular eruption, the size of a shilling, had just appeared at the seat of the bite on the hand, where there always had been a small scar. All connected with the lad were in great alarm. Now, on this doubtful and slight symptom various difficult questions arose :—

1. Could the period of incubation, if the dog had been mad, be five or even two years?—On the historical evidence, Yes.

2. Would an eruption so occurring be likely to be the precursor of true Hydrophobia?—Yes.

3. If the genuine symptoms appeared, would the boy recover?—Unless the

* Those who desire a graphic account of a case of Hydrophobia should consult Sir Thomas Watson's "Lectures on the Practice of Medicine," vol. i. p. 590, sixth edition, 1871.

alleged cases of cure by giving the Wourali poison were true, then, after the symptoms arose, his death within four or perhaps five days was certain.

4. Can a person die of fright, with spurious symptoms of Hydrophobia ?—Yes.

How strange these simple questions and answers ! Yet this is the issue raised in every case that occurs of dog-bite, where the condition of the dog, as in this instance, could not be ascertained. To meet the symptoms, should they arise, Mr. Yule, Fellow of Magdalen College, prepared for me a solution of Wourali, *whose mode of action he was able accurately to determine.* But the sore healed, and nothing remained but the old scar ; and the experiment of Wourali was not called for.

This brief outline of the general character of the much-discussed malady in our four-footed friend, and of the relation in which we stand towards it, naturally suggests the inquiry, What should be done by every State which is sufficiently organised to have an intelligent system of sanitary police?

If the State is in earnest to put an end to Hydrophobia, it would not be worth while to do less than this, that follows :—

1st. To have a rigid dog tax—*i.e.* one which permits no unowned, unregistered dogs. Every dog should have a collar, with the name of the owner and the number of the license.

2nd. Dogs which cannot be identified by these means should be destroyed by the sanitary authority of the district where they are found.

3rd. No dogs should, for a certain period, be imported from abroad, except under conditions.

4th. Mr. Fleming's suggestion, that, on every dog's license, should be printed precise instructions as to the signs of Rabies, and as to what should be done in case of dog-bite, should be carried out.

Practical statesmen and debates in the House of Parliament will doubtless suggest difficulties in these propositions. But it is hard to think that there is no agency among the excise, the police, the Board of Trade, the sanitary authorities, for carrying out with but little trouble or expense these or any other regulations of police for this end. Cattle, sheep, pigs, horses, do not stray unowned in the streets. I am by no means sure that there might not be cases of exemption on payment of a much higher tax. Indeed, for the sake of the poor, the cost of mere registration should be low enough to be hardly a productive tax. Packs of hounds, and some other dogs under responsible keeping, might earn immunity from the hated collar on payment of a sum quite profitable to the State, though little felt by the owners. The owner of such dogs might be safely trusted to destroy them on due cause. It has to be borne in mind that the disease may exist in all domestic animals, and notably in the wild one reserved for sport—the fox. He may perchance communicate it to the dog.

Space will not allow the distribution of Rabies throughout the globe to be fully considered. Fleming has ransacked many writers in every country for records of its existence. If one should take a map of the world and mark on it with a blue wafer the countries where it is prevalent ; with a red one where it exists, but is rare ; and with a yellow one where it is absent, he would see, in a graphic way, that the temperature and central zones of latitude are generally occupied, rather than the extremes towards either pole. This seems to depend not upon the temperature, but upon comparative isolation of the northern and southern countries, such as Greenland, where there are many dogs and no Rabies, and such as New Zealand, Australia, notwithstanding their communication with England, and the islands generally of the great oceans. But this matter requires more precise elucidation. Experiments at Alfort seem to show that neither thirst nor heat will originate it, and go far to prove that it is a simple case of communicable virus. Great

pains have been taken in France to collect a record of all known cases of persons bitten by mad dogs. M. Bouley, the learned veterinarian of France, has given in the *Comptes Rendus* for 1870 a careful and instructive abstract of reports on the subject. It will well repay perusal. In 49 departments where Rabies existed, 320 persons had been bitten by mad dogs in six years. Only 129 had Hydrophobia, and 123 were known to have died. No one of these 129 had the disease latent for more than six months. Most of them died on the second or third day after the symptoms appeared. Of 134 persons 92 recovered whose wounds were cauterized, and of 66 not cauterized 56 died, only 10 recovering. These statements prove the almost complete immunity through the use of actual cautery.

In the case of 785 dogs that were bitten, 527 were killed ; and of 25 not killed but observed, 13 became mad. But let this be noted : of 785 thus bitten, 552 were accounted for. The authorities let 233 escape. And if these went mad in the proportion of those which were observed, there would remain 116 dogs *left at large mad.*

Statistics of this kind have been unattainable for England. But we have enough, through the splendid tables of mortality, monuments alike of English civilization and of official zeal, prepared by Major Graham and Dr. Farr at Somerset House, to show that the present panic in this country depends on the horror of the complaint, not on its frequency, and upon the just conviction that it is high time to prevent its increase.

There are 22,000 cases of snake-bite annually in India, or 1 to every 10,000 of the population. In England there were in the years 1850 to 1876, 538 deaths from Hydrophobia out of 12,457,265 total deaths. These occurred in twenty-seven years, at the rate of 20 annually in a mean population of 20,781,799 persons. The annual deaths to a million persons living were 22,201, one being from Hydrophobia. The Cholera in Oxford, in 1854, destroyed in a few weeks 115 persons out of 26,000, which, if expressed in the proportions of the people in India, would amount to 973,077 deaths. The maximum of deaths from Hydrophobia in one year, in England, from 1850 till 1876, was in 1874 (viz., 61 in a population of 23,648,609) ; and the minimum in 1862—1 out of 436,566 deaths among 20,371,013 persons. In the year 1876 the deaths from Hydrophobia were 53, out of 510,303 deaths ; or 1 in 9,628 deaths occurring among 24,244,010 persons : in other words, *one* death in a year * from Hydrophobia among 457,432 living. These figures, together with the fact of the immunity after cautery, and the thorough attention now paid to the subject, should reduce the alarm to its natural proportions and place.

Thus I have endeavoured to present a rough sketch of a disorder which has caused too much anxiety to many. Nothing can divest the subject of its wide and weird interest. Yet nothing can be more reassuring than the knowledge of how nearly it is under our own control. The marvel is that we are and have been so careless. Often we may *prevent* where we cannot *cure*. This has been the message of Medicine, in the present age, to Man, in more things than the poison of Rabies.

THE FELLOWSHIP DEGREE OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the examination held on January 12th, the following members of the profession were duly elected Fellows of the Royal College of Veterinary

* Meanwhile there was, during the eight years 1869-76, an annual average of 212 deaths among the 3,333,345 persons estimated to constitute the average population of London in the same period, by being run over or knocked down in the streets.

Surgeons. We heartily congratulate them, not only on having passed the necessary ordeal in a creditable manner, but also on their possession of that professional *esprit* which prompted them to study for the obtainment of the degree, and at much cost of time, comfort, and money, to win it. This most laudable and highly-to-be-commended ambition augurs well for the future; as in a few years the welfare of the veterinary profession in this country, and the management of its affairs, will devolve upon those alone who are Fellows. Gentlemen who are willing to make such sacrifices now may safely be entrusted with the sole guardianship of the interests of our corporation in time to come; while the evidence they have given of their desire and competency to promote their science, gives us no less hope that they will earnestly and worthily maintain its daily-increasing reputation and value, and confer honour on the degree with which they have themselves been honoured. The title should not be, and is not, an empty one; and those who lay claim to it will doubtless find that it is intended to be an evidence, not only of professional earnestness and *morale*, but that it shall also be a proof of the possession of merit and ability beyond that conferred by the degree of membership :—

Professor W. Duguid, the Brown Institution, London,	J. W. Hill, Wolverhampton,
H. Olver, Tamworth,	J. Mackinder, Peterborough,
A. H. Santy, Norwich,	R. Ward, Woking,
	C. E. Challinor, Manchester.

As we are frequently requested to give intending candidates for the Fellowship degree some idea of the examination to which they will have to submit, and particularly with regard to the nature of the questions in the written portion, we publish the questions which were placed before the candidates in July and January :—

JULY EXAMINATION.

Questions in Physiology.

Mr. ROBERTSON.

1. Give a definition of the terms function, nutrition, secretion, and excretion.
2. What is the peculiar vital property of muscle, and what influences may call this property into action?
3. What are the functions of the bile and pancreatic juice as regards digestion?
4. What are the various forces concerned in the circulation of the blood?

Questions in Comparative Anatomy.

1. What are the constituent parts of a vertebra—natural and typical?
2. What structures are visible to the unaided eye when the kidney is cut longitudinally, and what are the external differences between the kidney of the horse, ox, and sheep?
3. Mention in order, from before backwards, the ganglia in the brain of a vertebrate animal. What are the obvious differences between the brains of the lower and higher vertebrata?
4. Describe the structure of the horse's stomach, and contrast it with that of the ox and dog.

Epizoötology.

Mr. FLEMING.

1. What is meant by the terms "Enzoötic," "Epizoötic," and "Panzoötic"? Give the derivation of these terms.

2. What are the chief agencies by which Epizoötic diseases are extended over wide tracts of country, and to what may their origin and maintenance be ascribed?
3. Mention some of the more serious Epizoötic diseases.
4. In what years were the Contagious Pleuro-pneumonia of bovines and Foot-and-mouth Disease first observed in this country?
5. Enumerate the conditions necessary for the successful transmission of a contagious malady.
6. State the principal measures to be adopted for the extinction of an infectio-contagious disease like Cattle Plague.

Sanitary Science.

1. Enumerate the principal diseases which, in the present condition of veterinary science, may be considered as preventable.
2. What diseases are transmissible from animals to the human species, and how is this transmission usually effected?
3. What is meant by the term "Zymotic"? Give its derivation, and describe the theory which connects the term with a certain class of diseases.
4. What are the principal views now held as to the nature of contagia?
5. What proportion of carbonic acid in the atmosphere is fatal to the larger mammalia?
6. Mention the principles of artificial ventilation.

Surgery.

Professor WILLIAMS.

1. Describe the symptoms of strangulated inguinal hernia and the modes of reduction; also the method of operation for castration in non-strangulated scrotal hernia.
2. Describe the process of inflammation and formation of pus in non-vascular structure, such as articular cartilage and the cornea.
3. Give the causes of non-union of fractures, and describe the means to be employed to remove them and induce proper reparative action.

Dietetics.

1. Give the differential nutritive value of oats, wheat, barley, beans, and peas, and state which is the most digestible of these feeding stuffs, and why.
2. Give the necessary proximate principles of food, and describe the process of the assimilation of each of these principles.
3. What are the effects of a long-continued bran diet, and in what diseases is it inadmissible?

Pathology.

Mr. HARPLEY.

1. Describe the nature and symptoms of Simple Fever and Typhoid Fever.
2. What are Glanders and Farcy? State their nature and characteristic symptoms.
3. Describe the causes, symptoms, and treatment of Nephritis in the horse.

Therapeutics.

1. What is meant by the local and remote action of drugs? Give an example of each.
2. Write a prescription for a Fever, Colic, and sedative drench for the horse.

January Examination.

Physiology.

Mr. Robertson.

1. Describe the mode of growth or development of long bones. Contrast the microscopic appearances of a transverse with a longitudinal section of bone.
2. Describe the process of rumination. What are the conditions favourable for good digestion? What are the functions of the bile, the pancreatic juice, and the secretion of the intestines in regard to digestion?
3. What is the present state of our knowledge with respect to the innervation of the heart? Mention particularly what is understood by the terms "inhibitory action" and "vaso-motor power."
4. What are believed to be the respective functions of the ganglia of the brain?

Comparative Anatomy.

1. What is the form of the red-blood discs in the horse, camel, hen, and frog?
2. What are ganglia, and where are they found? How does a nerve comport itself on entering a ganglion?
3. What are the anatomical differences in the circulatory organs of a vertebrated and an invertebrated animal?
4. What are the sympathetic ganglia annexed to the fifth pair of cranial nerves? Describe their situation and connection with this nerve.

Sanitary Science.

Mr. Fleming.

1. State the composition of the atmosphere, and mention the change it undergoes in respiration.
2. What amount of cubic space in a stable should be allowed a medium-sized horse, and what are the effects of over-crowding and insufficient cubic space?
3. What are the differences between hard and soft water, and what amount of saline residue constitutes the latter?

Epizoötology.

1. What are the causes which tend to the maintenance of Variola Ovina in those continental countries in which it prevails in a continuous manner, and what are the sanitary police measures necessary for the suppression of this malady?
2. How are Glanders and Farcy maintained and extended?
3. Mention some countries in which Rabies Canina has not yet appeared.

Surgery.

Professor Williams.

1. What are the causes of, and changes which occur in the textures in, the process termed "Atrophy," and the degenerations?
2. What is the difference in the gait observed in the following sources of lameness:—1. Splint; 2. Ringbone; 3. Navicular disease; 4. Sidebones; 5. Laminitis; 6. Shoulder lameness—particularly that arising from sprain or disease of the flexor brachii (coraco-radialis) muscles?
3. Describe the various methods adopted to arrest arterial hæmorrhage, the modus operandi of each, and the methods by which divided arteries become permanently impervious.

Dietetics.

1. What are the proportions of albumen, hydro-carbonaceous, and saline ingredients contained in wheat, oats, barley, linseed, rape, and cotton cakes, turnips, carrots, potatoes, hay, and straw? Also state in what manner the several articles of food may be most economically used, and what is the nutritive value of each.

2. Describe the changes which must occur in starch and gluten before they become assimilated.

3. Give the proper dieting in the following diseases—viz., Diabetes, Oxyluria, Jaundice, non-parasitic skin diseases; and for the mare and cow before, and immediately after, parturition.

Pathology.

Mr. HARPLEY.

1. Describe Follicular Scabies in the dog, and give the leading characters of the parasite producing it.

2. What is Cataract? Where is it situated, and how produced?

3. Describe the lesions of Glanders, and the organs and textures in which they are observed.

Therapeutics.

1. Define the action of diuretics.

2. What is aconite? What are its physiological and therapeutical properties?

3. Describe the medicinal properties of cantharides.

ROYAL COLLEGE OF VETERINARY SURGEONS.

NEW MEMBERS OF THE PROFESSION.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held January 7th and 8th, the following students from the Royal Veterinary College, London, passed their examinations, received the diploma, and were admitted members of the profession :—

January 7th.

Mr. Edward Allen, Dublin.
„ James Cook, Middlesboro', Yorkshire.
„ Wm. James Worster, Blisworth, Northamptonshire.
„ Frank Henson Gibbings, North Tawton, Devon.

January 8th.

Mr. John Herbert Callow, Horsham, Sussex.
„ Frederick Wallewski Forsdyke, Buckland, Dover.
„ Thomas Williams, Malvern, Worcestershire.
„ Frederick Robert Stevens, Norwich.
„ Francis Kennedy, Ennis, Co. Clare.
„ Charles George Poulton, Coggeshall, Essex.

STUDENTS FROM THE ROYAL VETERINARY COLLEGE WHO HAVE PASSED THEIR FIRST EXAMINATION.

At the several meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held January 9th, 10th, and 11th, the following

students from the Royal Veterinary College passed their "First Examination":—

Mr. Albert Barr Medd,
„ Frederick John Short,
„ George Crane Hunting,
„ George Sydney James,
„ Frederick Elworthy,
„ Frank Taylor,
„ John Henry Riches,
„ John Mossop,
„ William Frederick Wright,
Mr. William Henry Beach,
„ John Jas. Crowhurst,
„ Frederic Gowland Rugg,
„ Nicholson Almond,
„ Alfred John Hickman,
„ Edward Geo. Johnson,
„ Henry Agustus Rumboll,
„ William John Malvern,
„ Edward Harvey Kelly,
Mr. John Trevor Jones.

At a meeting of the Scottish section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh on January 21st, the following students from the Edinburgh Veterinary Colleges passed their "First Examination":—

Mr. Alexander Mackenzie,
„ Henry Vaughan Lloyd,
Mr. George Humphreys,
„ William Henry Hill.

ON CHINESE HÆMATOZOA.*

BY PATRICK MANSON, M.D.

ALLUSION has often been made to a condition known at Amoy as "Worms in the Heart," to which the European dog in China is peculiarly liable. Any one who has had much acquaintance with dogs in China must be aware of their liability to sudden and apparently unaccountable death; and the medical practitioner is often asked to perform a *post-mortem* examination, with the view of clearing up or confirming the suspicion of poisoning which is so commonly entertained in such cases. Ten chances to one, the cause of death is found to be plugging of the pulmonary artery, or mechanical interference with the action of the valves of the heart, by a mass of filariæ occupying the artery and cavities of the right side. I have had many opportunities of seeing this affection, and I am aware that a similar disease is known in America, France, and Italy, and probably elsewhere, and that the "worm" has been more or less carefully described by various authors.

Besides the usual and well-known external pests, there is a large number of different parasites infesting both foreign and Chinese dogs. I am familiar with at least five species occupying the alimentary canal: viz., two kinds of tænia, a thread-worm inhabiting the small intestine, and two round worms like the human lumbricus. In addition to these is the heart-worm, variously named *Filaria canis cordis* or *Filaria immitis*, and a new species, not hitherto described as existing in the dog in China,—the *Filaria sanguinolenta*. The latter was discovered by Dr. Lewis in the pariah dog of Calcutta, and most of his observations I have been able to confirm. I propose to describe both *Filaria immitis* and *Filaria sanguinolenta*, as an acquaintance with the appearance and habits of both is necessary to understand the lesions they produce, and to prevent mistakes and false conclusions on an important point in the history of *Filaria immitis*—viz., the process by which it obtains access to the circulation of its host.

* From the *Customs Gazette*.

Filaria Immitis.

Its Prevalence.—The extent of this is difficult to estimate without much and laborious investigation ; but if I say that one-half of all dogs in China (my remarks apply especially to Amoy), whether native or foreign, are the hosts of this parasite, I believe I am within the truth ; two out of three is nearer it, and is not, I think, an over-statement. Any one can satisfy himself on this point by examining with the microscope the blood of the first half-dozen dogs he can procure,—and to do so it is not necessary to kill the animals.

Mode of examining the Blood for Embryos.—The plan I adopt is to make a small incision with a sharp knife on the inner surface of the ear, where the skin is not covered by hair, and from this to express sufficient blood to supply six or eight slides. These I carefully search with a low power ; and the probability is, that in one or all of them one or more immature filariæ will be discovered. From observations thus made, and in some cases confirmed by *post-mortem* examination, I conclude that dogs of all ages, and probably every breed, are liable to be attacked by the parasite I am describing.

The Embryo Filaria.—The immature hæmatozoon thus discovered, according to my measurements, is about $\frac{1}{100}$th of an inch in length by $\frac{1}{3000}$th of an inch in breadth, and, as far as I can make out, is quite structureless. On close examination with a high power, something like a mouth can be seen at the blunt extremity, which appears to be alternately protruded and retracted. The body attains its greatest diameter a short distance from this point, and maintains the same thickness for about two-thirds of its length ; beyond this point it gradually tapers off to the long and filiform tail. In freshly-drawn blood the animalcule is in constant motion, wriggling about amongst the blood-corpuscles with a snake-like movement, and lashing out most vigorously with its supple and slender tail. It never seems to be at rest, and retains its activity as long as the blood continues fluid—often for many hours. It never seems to attach itself to the blood-corpuscles or to the surface of the slide. I have never seen any sign of growth or development in the many specimens I have examined, the measurements and appearance of all being exactly alike. So numerous are these creatures in some specimens of blood, that I have seen as many as five in full activity in one small field of the microscope. From this some idea may be formed of the vast numbers existing in the total circulation in such a case ; and one cannot but wonder that it is possible for a dog, containing such a prodigious number of parasites, to live. I know many dogs thus infested, and which have probably been so for many years ; yet they seem in no way inconvenienced by their guests, have attained a good old age, and are fat and well nourished. If a dog whose blood is thus infested dies or is killed, the parents of these microscopic filariæ are found coiled up in the right ventricle of the heart for the most part, sometimes extending through the tricuspid valve into the auricle, and even into the superior vena cava, and very generally through the semilunar valves far into the pulmonary artery and its branches. I have never found them, or anything resembling them, in any other vessel, though careful search has been made in all the larger veins. In the heart their bodies are found after death, surrounded for the most part with a dark, soft, grumous clot, which, on microscopic examination, is found to be swarming with the embryos above described. Their number varies very much. Sometimes there are only three or four, while in other instances the heart and pulmonary artery are actually stuffed with them, so that one can hardly understand how the circulation can possibly be carried on. The largest number I have counted was forty-one, and in this instance some were pro-

bably overlooked, as they extended into the smaller branches of the pulmonary artery, and escaped detection.

On opening the heart, the worms are found massed together in a bundle, like a coil of thick catgut that has been some time steeping in water. The few sluggish movements they exhibit after the death of their host form a striking contrast to the liveliness of their progeny. On unravelling and extending them, they can be separated into two kinds : one sort, the larger and plumper, measure from 8 to 13 inches in length by $\frac{1}{30}$th of an inch in diameter ; the other (the smaller), 5 to 7 inches in length by $\frac{1}{40}$th of an inch in diameter. The former is the female, and is characterised by her superior dimensions and only slightly curved caudal extremity ; the latter is the male, and is easily recognised by his fine tail, curled up near its extremity like a corkscrew or the tendril of a creeper. The colour of both is a milky, opalescent white, with generally a long, and at places convoluted, thin red streak, most marked near the head, running nearly the whole length of the body : this is the alimentary canal. They feel like whipcord when rolled between the fingers, and can bear considerable strain without breaking. If the body of the female is snapped or cut across, three slender threads can be drawn from one of the severed ends : these are the alimentary canal and the two uterine tubes. On the male being similarly treated, only two threads are observed,—the alimentary canal and the testicle. As a rule, the females are more numerous than the males. In one instance I found four females but no male. The general proportion is about one male to two females. In the instance above mentioned, in which forty-one worms were found together, thirteen were males and twenty-eight females.

Anatomy of the Mature Worm.—The coverings appear to be two in number : the tegumentary, a very delicate diagonally-striped membrane, continuous at the mouth and anus with the lining of the alimentary canal ; and the fibro-muscular, or inner coat, of strong and coarse longitudinal fibres, strengthened about the head by numerous diagonal bands. The alimentary canal commences by a funnel-shaped mouth placed slightly to one side of the extreme end of the animal. This funnel-shaped opening, contracting towards its apex, leads to the pharynx, and this to the œsophagus, which, running for a short distance directly backwards, terminates in a valvular-like opening in the intestine, about a quarter of an inch from the mouth. This, the main part of the alimentary canal, traverses the whole of the remaining length of the animal, to terminate in an anus placed not quite at the tip of the incurvated tail. For the most part, the course of this tube is straight, but at intervals it winds round the uterine or seminal tubes. It is rather narrower near the anus than elsewhere, but its dimensions seem to depend on the quantity of food, represented by a dark-red granular matter, with which it is more or less filled. The œsophagus is usually empty and contracted. The anatomy of the alimentary canal is about the same in both sexes. The vagina opens at a point close to the union of the œsophagus and intestine. It is a narrow muscular tube, which, after a short and convoluted course, first forwards and then backwards, bifurcates. The two tubes thus formed gradually increase in diameter, and constitute the uterus. These two uterine tubes occupy the greater part of the animal, and extend from within half an inch of the head to an inch and a half of the tail. Their course is usually straight and parallel, but at intervals they are twisted round each other. Each terminates quite abruptly in a very delicate vessel, which, after a short and nearly straight course, again gradually expands to about half the diameter of the uterine tubes, and after many turns, doublings, and convolutions, ends, close to the tail, in the delicate ovarian tubes. The course of the latter is short and tortuous, and terminates abruptly. The contents of the female reproductive organs form a very beautiful and striking object for

microscopic study; and from them, with a very little care, the whole history of the development of the embryo can be ascertained. To obtain specimens at different stages of development, it is only necessary to divide the body at short intervals with a sharp instrument, and examine the fluid which exudes from the severed ends. If a section is made near the tail, it is sometimes possible to draw or press out the very termination of the ovarian tubes, and after adding a little water, to observe the earliest appearances of the embryo. One is a globular transparent cell, from $\frac{1}{3000}$th to $\frac{1}{2000}$th of an inch in diameter, with a distinct nucleus and nucleolus. A little farther down the ovary, mixed with the clear globular cells, are others of a granular appearance and elongated form, measuring $\frac{1}{750}$th by $\frac{1}{2000}$th of an inch, with a nucleus and nucleolus dimly visible. Some of them are drawn out into a spine at one end or both, and when massed together, as they often are, resemble a columnar epithelium. Still farther down the cells enlarge—the circular to $\frac{1}{1000}$th, the spindle-shaped to $\frac{1}{500}$th by $\frac{1}{1800}$th of an inch—and are mixed with abundance of bright shining granules, measuring about $\frac{1}{6000}$th of of an inch, resembling what is seen in the spermatic fluid of the male worm. About this point the nucleus is seen to be divided, and as the examination advances into the uterine tubes, division and subdivision of this nucleus proceeds—the cell increasing in size to $\frac{1}{750}$th by $\frac{1}{1000}$th of an inch, and acquiring the oval form which it maintains till its maturity. By continued and minute subdivision of the nucleus, a mulberry mass is formed inside the envelope or shell. An indentation is then observed at one point; this indentation deepens, and by degrees the semblance of the free embryo is shaped from the mass. When this process is perfected, the egg measures $\frac{1}{500}$th by $\frac{1}{800}$th of an inch. As its development advances, the embryo loses its granular appearance, and exhibits some amount of movement. Its movements gradually become more active, till towards the vaginal end of the uterus the shell is burst, and shrivels up into an irregular granular membrane, and the embryo struggles out and swims about with all the vigour it afterwards displays when an independent organism in the blood. The liberated embryo measures from $\frac{1}{4000}$th to $\frac{1}{5000}$th of an inch in breadth by $\frac{1}{100}$th of an inch in length.

Close to the extremity of the tail of the mature male worm, and on its under surface, are two very delicate spicules, enclosed in a sheath and apparently retractile. Their common sheath is close to the anus. One spicule is longer than the other, being attached higher up the body. Besides these, there is a double row of delicate pedunculated papillæ, six on each side of the anus; and farther back than these, three minute serrations, and at the very extremity of the tail two very small tubercles. I presume that these spicules, and perhaps papillæ, communicate with the testicle by means of a *vas deferens;* but this communication I have not been able to trace, owing to the thickness and opacity of the fibro-muscular coat of the tail in the male worm. The testicle is easily made out: it is a long, simple tube occupying the greater part of the body; it terminates opposite the union of œsophagus and intestine, by the last few lines of it doubling back and gradually tapering down to a point. The contents of the spermatic tube consist of a clear colourless fluid, in which minute shining elongated bodies are suspended. If the male is cut across near his caudal extremity, a drop of this fluid exudes. The spermatozoa measure about $\frac{1}{6000}$th of an inch in length.

How does *Filaria immitis* enter the circulation? We have seen the two extremes, so to speak, of the parasite's life—the minute structureless embryo, and the mature elaborately organized parent a foot in length. But I have met with no intermediate form; yet such there must be. Where to look for it I cannot suggest. I have searched in all the visceral and cervical veins, but

without discovering a trace of such a form. Spleen, liver, kidneys, lungs, brain,—all the viscera, in fact, in every instance in which I have dissected them, have yielded no information. Dr. Jamieson has suggested that the large water filariæ he had under observation for some time might be the heart-worm of the dog; but this is extremely unlikely, if not impossible. Of the two hundred or more species of filariæ known to naturalists, many live an independent life, and never become parasitic. Such were probably the specimens he watched. They are found in abundance in stagnant water, moist earth, and in a variety of different media. Many, however, are parasitic in birds, fishes, quadrupeds, and molluscs, free in the intestine, or embedded in different tissues. Such, as a rule, are swallowed with the food, having previously undergone some advance in development in the body of another animal, in water, in moist earth, or on vegetables which the final host consumes. The degree of development effected in these temporary media consists essentially in the elaboration of an alimentary canal, and a boring apparatus wherewith to penetrate the tissues and assist the animal in its progress to its future resting-place. Now, in the case of the *Filaria immitis*, after a residence more or less prolonged in some suitable medium, it is swallowed, or in some other way obtains access to the tissues of the dog; then, by means of the boring apparatus with which it has become provided, it penetrates, and working its way to some spot in or near a vein, it rests for a time, loses all trace of its boring apparatus, grows from probably a microscopic animal to a length of many inches, and becomes provided with a complete set of reproductive organs. This accomplished, it finds its way along the vein to its final resting-place—the right side of the heart—where the important function, reproduction of its species, is performed. I cannot tell whether the parasite ever dies before its host, or if it dies what becomes of it, or what effect its death has on the dog. In what animal or other medium the first step in development is gone through, I can only guess at; and what the spot or tissue it lies *perdu* in till it finally enters the circulation, I cannot find out. Both these points it would be interesting and important to ascertain. That the latter is not the heart I feel certain, as imperfect animals of a much smaller size and at different stages of development would be found there. Such I have never seen. The smallest female I have measured has been over seven inches in length, and all I have examined have been sexually mature. It cannot be in the arterial system, as to get at the right side of the heart the capillaries must be traversed; and it cannot be on the distal side of the portal circulation, as it would be arrested in the liver. The receptaculum chyli, thoracic duct, or the venous system, exclusive of that passing into the liver, must be the channel by which the heart is reached, and the places where the immature animal should be searched for.

Diseases produced by Filaria Immitis.—One must be careful not to attribute to this cause the death of every dog in whose heart worms are found. We have seen that nearly two-thirds of all dogs are thus affected, and that for the most part host and parasite are apparently in good health. But I think there are at least two forms of disease fairly attributable to *Filaria immitis*.

The position the worm occupies in the circulation is about the safest so large and fertile an animal could select. Were the left side of the heart its habitat, the consequences to the host would surely be much more formidable; for in such case, the animal, escaping from the ventricle (as is its habit), would pass into some small but important artery, and all the evils of embolism would follow. Or even if the unhatched eggs were to escape in any number, as I suppose they sometimes do, there would be the same danger from capillary plugging in the brain, spinal cord, and elsewhere.

The capillaries of the lungs, however, act as a filter, and all products of generation too large to pass capillaries, all the results of death if such a thing occurs, and the wandering parasite itself, should he, as he so frequently does, leave the heart,—all these are arrested there; the free embryo, of a diameter smaller than a blood corpuscle, too small to do harm by its size, alone passes through. As a consequence of this filtration, the lungs may themselves be injured; and I put down tubercle, or tuberculoid disease, as an occasional result of this process. I have met with an appearance closely resembling miliary tuberculosis in the lungs of filaria-stricken dogs; and in many cases where no distinct tubercular appearance exists, the lungs feel, when squeezed between the fingers, as if they contained numerous minute particles of gravel.

The most frequent and important effects, however, are those that may be attributed purely to the mechanical interference with the valves of the heart, and the capacity of the pulmonary artery and branches. But it is astonishing how very considerable the bulk of the bunch or rope of worms extending through the tricuspid and pulmonary valves may become. In many instances it must be impossible for the valves to close properly, or for more than one-third of the full stream of blood to be transmitted by the pulmonary artery. Such an animal must, of course, be short-winded, and perhaps liable to attacks of Syncope, especially on exertion or excitement, when the demands on the circulation are greatest. And it is after some occurrence, such as a fight, that death most frequently occurs. Possibly, then, the energetic working of the ventricle has forced one or two more worms suddenly into the pulmonary artery, or entangled them among the valves or *chordæ tendinæ*, and death may come suddenly, or only after a day or two, during which breathlessness and other signs of failing circulation point to the probable cause of illness.

Filaria Sanguinolenta.

I employ this name on the authority of Dr. Lewis, who adopts it from Schneider. The latter applied it to a filaria found embedded in the walls of the stomach of dogs, the description of which, Dr. Lewis says, applies very closely to the animal found by him in the œsophagus, thoracic aorta, and neighbouring parts of the pariah dogs of Calcutta. Dr. Lewis's description nearly corresponds with what I have observed in Amoy, and I have no doubt the parasites are identical. In the following notes I will confine my remarks strictly to what I have myself observed.

Some idea of the extent of its prevalence may be formed from the fact, that of thirteen dogs slaughtered for the purpose of procuring specimens of this parasite, nine contained the living animal in different stages of development, or showed traces of its former presence. So that I think I may safely say that all dogs that have attained any considerable age are, or have been, its host, though the degrees of infection and accompanying lesions vary from that of the most trivial description to those of the utmost gravity.

As to its presence being recognised during life, Dr. Lewis has always found it associated with free embryo filariæ in the blood, such as I have described as belonging to *Filaria immitis*, and he looks upon these embryos as the progeny of *Filaria sanguinolenta*. He is quite aware of the possibility of his being mistaken, but he thinks it very unlikely, as in several instances in which *Filaria sanguinolenta* and embryo filariæ were present together, he pursued his search into all the principal bloodvessels for other forms of mature filariæ, such as might have given birth to the free embryos, but without finding any. Still, I think he is in error, and for the following reasons:—Embryo filariæ are found in the blood where there may be

no aortic tumours: among the thirteen dogs just referred to, there were seven which, although containing *Filariæ sanguinolentæ* or exhibiting traces of their presence, yet had no free embryos of any sort in the blood,—at least, I did not find them; whereas, when *Filaria immitis* was present in the heart, free embryos were found in all but two cases. The two exceptions almost amount to a proof in themselves, for in one case unimpregnated female *Filariæ immites* were found without any male worm, and in the other a solitary male, while aortic sanguinolenta tumours were present, and breeding sanguinolenta females were found in the œsophagus. There are other reasons, which will appear by-and-by, why we should not consider the free embryos often associated with it as the progeny of *Filaria sanguinolenta*.

(*To be continued.*)

Reviews.

EVERY MAN HIS OWN HORSE DOCTOR. By G. Armatage, M.R.C.V.S. London: Warne & Co.

A book which is designed to teach every man to be his own "horse-doctor," scarcely comes within the cognizance of a journal which is decidedly opposed to amateur animal torturing. We were hoping that the day had almost gone by when members of the veterinary profession would employ themselves in promoting quackery and empiricism, and doing injury to valuable animals, by writing books which profess to give every man a knowledge of how to treat disease and perform operations on the domestic animals. It is true that certain agricultural and sporting papers have a "veterinary" editor—or, as an American paper has it, a "horse-doctor"—on their staff, who gives advice free, and prescribes for injuries, derangements, and maladies which he has not seen, and which may then be under treatment by some qualified member of the veterinary profession; the owner being desirous of knowing from the learned editor whether such treatment is right. We need scarcely say that we think it undignified and unworthy the position of veterinary surgeons to act in this manner. Many years ago, when competent men were few and far between, there may have been some excuse for a veterinary editor giving free advice in a newspaper; but nowadays there is no such plea. Veterinary surgeons are numerous, and within comparatively easy call; and, seeing the patient, they are surely in a better position to give advice and treat it than he who has only had its condition very imperfectly described by letter, or the owner, or groom, who derives his knowledge only from reading, and knows nothing whatever of surgery or clinical medicine.

We do not find medical men giving advice or writing articles on the diseases of mankind and their cure, in the columns of sporting or agricultural journals: then why should veterinary surgeons stoop to encourage quackery, and directly or indirectly lend themselves to torturing or injuring valuable animals, by teaching every man to become his own veterinary surgeon? Our experience of amateur horse and cattle doctors

has been somewhat extensive, and we are convinced that in no instance is a little knowledge more a dangerous thing than in their case. We could relate many comical—not unfrequently painful—anecdotes of the proceedings of amateurs who attempted to cure their animals by book or newspaper guidance.

Surely the time has now arrived when the veterinary surgeon who can do so will write for the benefit of the profession, and with a view to its promotion. Quackery is even more pernicious in the case of dumb animals than with mankind, and no real service is conferred by making it more common and more difficult of eradication. To teach every man to be his own cow or horse doctor, is simply teaching him to be his own cow or horse torturer. There is an innate desire in many persons to dabble in medicine; but they rarely, indeed, do so with advantage to themselves or their patients. Books and newspaper directions cannot teach people to recognise and treat disease in animals; and, indeed, they are far more likely to mislead and bewilder.

Mr. Armatage's book, well written though it is in the popular style, may give an amateur some degree of confidence in "horse-doctoring," but it cannot ensure him success. Diagnosis is not to be acquired by reading, and long years of close observation and attentive study, and a perfect knowledge of many accessory sciences, are necessary to make a good veterinary surgeon. No one, we feel assured, would more readily concede this point than Mr. Armatage, and therefore we are all the more astonished at his present venture.

Being a book essentially for "every man," it can have no special claim upon the attention of the veterinary profession, which needs books of quite another character. Nevertheless, the work presents a fair summary of the more frequent equine diseases and accidents, with their appropriate treatment; and by means of many illustrations an attempt is made to give an idea of diseased appearances, surgical appliances, etc.

The work, with which is incorporated "Blaine's Veterinary Art," now out of print, forms a fitting companion to "Clater's Every Man his own Cow Doctor," by the same author.

Lectures on the Examination of Horses as to Soundness. By W. Fearnley, M.R.C.V.S. London: Baillière, Tindall, & Cox.

Mr. Fearnley has written an excellent little book on the soundness of horses, which may be read with profit by the majority of veterinary surgeons, and by all horsemen. The substance of the work consists of a series of lectures delivered at Dick's Veterinary College, Edinburgh, during the summer session of 1874; several of these lectures appeared in the earlier numbers of the *Veterinary Journal*, and in their collected form they certainly appear to advantage. The only work similar to this in the English language, so far as we are acquainted, is that by Mr. Stewart on "Advice to Horse-Purchasers;" but Mr. Fearnley's book goes beyond this, and approaches the French treatises on the exterior of the horse. Mr. Fearnley's views are, in some particulars, rather different to those entertained by many veterinary surgeons; and we fancy

they will not stand the test of experience. For instance, speaking of Naviculartbritis and the operation of neurotomy, he says: "Degeneration of the tissues may be delayed for a time in the 'nerved' foot; but if it has been effectively done—that is, done so that there shall never be re-union of the nerve—then it is physiologically impossible for degeneration of tissue to be delayed over a very short time." So far as our personal observation has gone, we know of instances in which the diseased foot has remained entirely destitute of sensation, after neurotomy, for a number of years, and the animal has performed its duties as well as any sound horse could do. It is not the mere deprivation of "feeling" which leads to rapid degeneration; it is the more severe strain imposed on the diseased textures—too advanced in disease to allow the operation to be permanently successful—that brings about serious consequences in a short time. We scarcely think the production of Naviculartbritis, as propounded by Mr. Fearnley, will satisfy observant pathologists, any more than the "rheumatoid diathesis" or "cancellated tissue" genesis of other authorities.

But these are really trivial defects in what is, in many respects, a well-written and original book,—a book which we can honestly recommend; and more especially the Appendix, which treats of the legal aspects of horse-examinations.

The Prevention of Rabies in Dogs. By A. Wynter Blyth. Exeter: Congdon and Board.

Mr. Blyth is well known as the indefatigable Medical Officer of Health and Analyst for the county of Devon, and the author of an excellent work on hygiene. The recent outbreak of Rabies Canina in Devonshire and Cornwall has afforded him an opportunity of studying the malady, and the results of his investigations he has published in the *Sanitary Record* for November, 1877, and now in the form of a pamphlet. We do not find much that is particularly worth noting in Mr. Blyth's paper. We have already given his account of the appearance and extension of the disease in Devonshire. He traces the commencement of the outbreak in England, as we had already done in 1872, to Lancashire in 1869, and follows our record, speaking of it as an "epidemic." To Sir Thomas Watson he gives credit for what belongs to others: "To call the disease Hydrophobia when it attacks the human, Rabies the canine subject, is a very just and suggestive distinction adopted by Sir T. Watson." The loyalty of medical men to the medical profession is real and redoubtable. Dr. Blyth does not believe in the "spontaneous" development of Rabies (if such a term as spontaneous can be admitted in pathology): "The disease neither arises spontaneously in the dog, nor does a healthy dog communicate it to others." We do not, dare not, assert that this statement is incorrect; yet we do not, dare not, assent to its absolute correctness, until we have disposed of certain cases which have occurred in our own experience, and in that of other careful and impartial observers.

Dr. Blyth points out the grave defects in the legislative enactments at present in force. He follows Bardsley, Youatt, and Sir Thomas Watson, in recommending a quarantine of all dogs in these islands for six months, in order to extinguish the disease. But in "Rabies and Hydrophobia" we have pointed out objections to this measure, and have shown that it would not prove successful for several reasons, and more especially as in some instances the latent period extends beyond twelve months in the dog. However, there can be no doubt whatever as to the value of restrictive measures; and Dr. Blyth gives us a most instructive example. "The authorities of Barnstaple were profoundly and very properly impressed by a death which occurred here from Hydrophobia; and about two months ago the present Mayor issued a very stringent order, that no dog should be at large, save led by a string —a regulation not like many Acts of Parliament, written but not enforced, but a regulation carried into effect with the most consistent rigour. The result has been in the highest degree instructive. Any dog going mad in the borough has no opportunity for commencing his tour of destruction. Directly the early restlessness develops into delirium the malady is detected and the patient destroyed; whilst, on the other hand, any rabid dog wandering from without in search, as it were, of others to bite, at once attracts that attention which he would never do were he not solitary, and therefore peculiar. One instance of this will suffice. A week ago a large rabid sheep-dog, after a long weary round of destruction, entered the town. A police-sergeant first noticed the animal was ownerless, next that his manner was strange. The sergeant ran him into a passage, secured him by the neck with great bravery and adroitness, and conveyed him to the police station. The dog was ultimately destroyed, after being examined by two or three veterinary surgeons, and pronounced unmistakably rabid. Had the case been otherwise, the dog might, among the crowd of others, have escaped notice; in any case he must have inoculated a large number of dogs, the result being that we should have had a succession of rabid animals from about the end of December to the beginning of February—the crop falling due about that time. If in this little borough the streets can be cleared of dogs, human life protected, and the disease stayed from propagation, is it too much to ask our legislators to pass a wider and more comprehensive expansion of the same measures which have been found so useful in a small area, isolated by no physical obstacles from the surrounding country?"

The literature of this malady is indeed advancing at a wonderful rate, and it is almost daily receiving additions. Perhaps the most valuable and complete is to be found in a series of articles which are now appearing in the *Medical Press and Circular*, and which we can highly recommend to those who are studying the subject, either in man or animals.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 2ND, 1878.

Present: Col. Sir F. Fitzwygram, Bart., President, in the chair; Professors Brown and Pritchard; Messrs. Balls, Batt, Blakeway, Cartwright, Collins, Cox, Dray, Fleming, Gowing, Greaves, Harpley, Hunt, Moon, Reynolds, Taylor, Withers, Woodger; and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Correspondence.

The SECRETARY stated that letters had been received from Professor Williams, Professor Walley, Mr. Smith, and Mr. Broad, regretting their inability to attend the meeting.

A letter was also received from the hon. secretary of the Central Veterinary Medical Society, conveying the thanks of the Society to the Council for the use of the Board Room, and asking for a continuance of the favour, which was granted.

A letter, dated October 3rd, was read from Mr. Joseph Woodger, in which he stated that the Secretary's reply to inquiries relative to certain persons assuming the title of M.R.C.V.S. appeared to have given great dissatisfaction. Mr. Woodger also submitted a draft letter in the form of a reply by the Secretary to inquiries, to be laid before the Council.

The SECRETARY stated that he had never heard any complaint as to the reply he had hitherto sent out in accordance with the bye-laws of the Supplemental Charter. The Register was published annually, and those who desired to have it could apply for a copy.

Letters had also been received from the United States from Messrs. J. B. Coleman and Mr. Edward Moore, members of the Royal College of Veterinary Surgeons, stating that a Mr. J. A. Going had been styling himself Professor and M.R.C.V.S.E., and asking if that gentleman was what he represented himself to be. They were informed that a certificate would be sent on their enclosing the registration fee. One of the applicants had sent the fee, and had obtained the certificate that Mr. Going was not a member of the Royal College of Veterinary Surgeons.

Another letter had been received from the United States, in which Mr. Nicholson, of the Detroit Fire and Marine Insurance Office, wished to be informed whether a W. D. Bunting had ever had any connection with the Royal College of Veterinary Surgeons. A similar reply had also been sent to him, requiring the necessary fee.

A letter had also been received from a Mr. Rynhart, styling himself V.S., Victoria, Australia, wishing to be informed whether Mr. Hutchings (whose advertisement was enclosed) was what he represented himself to be. The Secretary stated that Mr. Hutchings was a member of the Royal College of Veterinary Surgeons, whereas the writer of the letter did not appear to hold any kind of certificate whatever. He had not, therefore, replied to the letter.

The PRESIDENT and some of the members of the Council having expressed an opinion that any person had a right to ask for such information, the

Secretary was instructed to write for the fee, on receipt of which the certificate would be forwarded.

A letter had been received from Mr. Nicholson, librarian to the London Institution, Finsbury Circus, asking permission to make a few extracts from Lawrence's work on horses, published in 1810, for the purposes of an essay he intended to reprint. Mr. Nicholson called, and was allowed to make extracts, expressing his intention to present a copy of his book when completed to the library of the College.

The SECRETARY stated that a member of the Library Committee had proposed that the following works should be purchased: viz., "Horse-breaking," by Mr. Morton; "Horses and Riding," by Mr. George Neville; and "Horse Warranty," by Mr. H. F. Lascelles.

The proposition was agreed to.

The SECRETARY stated that he had prepared catalogues of the College and Field Libraries, and asked the sanction of the Council for the printing of a certain number of copies.

On the motion of Mr. DRAY, seconded by Mr. GOWING, it was agreed that a hundred copies should be printed and sold (with the exception of a gratis copy to each member of Council), at a charge of sixpence, the price to be notified on the cover.

The SECRETARY announced that Mr. Fleming had presented to the library of the College his complete work on "Veterinary Obstetrics."

On the motion of Mr. GOWING, seconded by Mr. BATT, a vote of thanks was proposed to Mr. Fleming for his presentation.

The SECRETARY submitted the forms for the second examination, to be held in April next. The Council approved of the same, and ordered them to be printed. Assent was also given to the insertion of the words "Examination and Examiners," to be engraved on the plate for the Fellowship Degree, which had been omitted in the diploma; two hundred copies of the ordinary diploma were ordered to be printed.

Report of Finance Committee.

The report stated that the vouchers and receipts for payments during the preceding quarter had been examined and found correct. The present liabilities amounted to £127 12*s.* 3*d.*, which the Committee recommended should be discharged.

Mr. HARPLEY, as chairman of the Finance Committee, explained that the discrepancy of ten guineas, which had appeared in the last quarterly accounts, had arisen from the omission of that sum, which had been received as a fee for a fellowship degree. There was another slight discrepancy of £1, which had been discovered; but it was thought advisable not to sign the balance-sheet until this explanation had been made to the Council.

After this explanation the report was received and adopted, and the necessary cheques were ordered to be drawn for the current expenses, and also for examiners' fees.

College Fund.

The TREASURER stated that there was at present no sum standing to the credit of the fund at the bankers'. All the money was invested.

In reply to a question,

The SECRETARY said that the amount standing in consols was £1390 17*s.* 1*d.*, which, with £122 16*s.* 3*d.* purchased in October last, made a total of £1513 13*s.* 4*d.*

The obituary notice was read.

The examinations in London were fixed to take place on the 7th of January, and those in Scotland on the 21st.

Royal Agricultural Society's Prizes.

The SECRETARY stated that a letter had been received from Mr. Jenkins, the secretary of the Royal Agricultural Society, wishing to be informed what steps had been taken to invite eligible candidates for the Royal Agricultural Society's prizes. He (the Secretary) had placed himself in communication with the relative candidates (of whom there were seven) who were desirous to compete for the Society's prizes. At the suggestion of the President he had also written to the three examiners who officiated last year, all of whom agreed to act on the present occasion.

After some conversation as to the amount of fees to be awarded to the examiners, it was ultimately moved by the PRESIDENT, seconded by Mr. GREAVES, and resolved, that the sum of £21 be voted. The examination was fixed to take place on Wednesday, the 9th January, at ten a.m.

Messrs. Hunt, Gresswell, and Mayer were reappointed examiners, and in the event of either of these gentlemen declining to accept the office, the President was empowered to appoint another in his stead.

Fellowship Degree.

The SECRETARY announced that there were seven candidates for the Fellowship Degree, three of whom had sent in their certificates with a fee of five guineas each.

It was arranged that the day for the examination should be fixed by the examiners and the Secretary.

A letter was read from Professor Walley, in which he stated that, being unable to attend the meeting, he could not take part in the discussion on the President's motion for the suspension of Bye-laws 32 and 33; but he trusted the President and Council would see the advisability of limiting the proposed test to the subjects of the last examination of those who had been in practice longer than three years, and to the subjects of the two last examinations of those who had been in practice for a period, say, of two or three years, as he was convinced that if the motion were passed in its present form it would be nearly, if not quite, valueless. Few practitioners of older standing than three years would care to recommence the study of chemistry, anatomy, and physiology, and to study a new subject, such as botany.

A letter had also been received from Mr. Murray, Brighouse, Yorkshire, who obtained the Highland and Agricultural Society's certificate in April, 1876, wishing to be informed whether he might be allowed to present himself for examination at Christmas.

Mr. DRAY again called attention to the Secretary's salary; but

The PRESIDENT reminded him that the matter had been fully discussed at a previous meeting, and that it was undesirable to re-discuss it then. The subject had been arranged to come up for further consideration at the end of the financial year.

Mr. DRAY then gave notice that he would call attention to the subject at that time.

The PRESIDENT moved the suspension of Bye-laws 32 and 33 for a period of three years, in order to enable gentlemen who have held the certificate of the Highland and Agricultural Society three years to obtain the diploma of the Royal College of Veterinary Surgeons, by passing the second and third examinations at one and the same time, on payment of full fees; and in order to enable gentlemen who have obtained the certificate more recently, but prior to December 31st, 1877, to obtain the diploma of the Royal College of Veterinary Surgeons by passing all three examinations at one and the same time, on payment of full fees. The object of the motion, he said, was to relieve certain gentlemen who, in time gone by, had obtained the certifi-

cate of the Highland and Agricultural Society, from the disability under which they had been placed by not having obtained the proper and legal diploma. Of course it might be said that it was the fault of those gentlemen that they had not at the proper time obtained the legal qualification ; but it should be borne in mind that in Edinburgh strong influence was brought to bear, by the professors and others, to induce them to take out the certificate of the Highland and Agricultural Society, and at that period there was an idea that that Society might become the licensing body for Scotland. It seemed to him to be a hard thing to place a lifelong penalty on men for an act of indiscretion in their earlier days. It was a hard case that a man who had studied at a regular veterinary school, and who had gone into the profession, should be liable ever after to be branded as a quack or an improperly qualified man. The object of his motion was to remove this grievance and hardship. Some years ago, soon after the Charter was first obtained, the Council admitted all gentlemen holding the certificate of the Highland and Agricultural Society on passing a *pro-formâ* examination ; and, no doubt, under that license a number of unqualified men passed into the profession. The present motion, however, was simply to remove the grievance which men who had studied the regular time now felt at not being able to get examined at one and the same time. It would not lower the standard of education or the standard of men in the profession in the least degree. When a gentleman had once got into practice he could not come up to London to be examined three times. All he asked them to do was, not to suspend in his favour the examinations, but the particular clauses which required him to be examined at three separate periods. He had been written to on one or two occasions by gentlemen practising in manufacturing towns, who complained of the disqualification under which they laboured from not having the proper and legal diploma. He thought this was a right feeling, and one which, as far as they could, the Council ought to encourage ; and he therefore begged to move the suspension of the bye-laws referred to.

Professor BROWN said that when the President first gave notice of his motion, he (Professor Brown) had some misgivings as to the effect of the suspension of the bye-laws suggested, because on a former occasion he recollected that it was felt over and over again that a difficulty had arisen, and most of the members on the Council were only too glad to make a motion to return to the former state of things, and to deprive the holders of the certificate of the privilege which they had up to that time enjoyed ; but thinking the matter over, he had come to the conclusion that, under the present circumstances, to suspend the bye-laws was the very wisest thing that the Council could do. Putting on one side what the President had said as to the justice or injustice of keeping men out of the profession after they had studied at college, there was a great deal to be said in favour of the terms proposed to be agreed to, on the ground that it would remove one very great objection commonly urged by the school authorities against what they looked upon as the localization of the licensing body in London. There was no doubt a widespread conviction in the public mind, in Scotland and elsewhere, that the Royal College of Veterinary Surgeons was a London College, and that the application made for special charters had been largely based on that ground—that there was nothing at present existing but the London College, and that the other parts of the kingdom laboured under a disability on that account. There was another thing on his mind which he could not at present explain quite fully ; but when the new Contagious Diseases (Animals) Bill came before the House, the Council would probably see what his object was. But it would be a very great advantage, as far as he could at present see, if it could only be urged that the holders of the Highland and Agricultural Society's certificates could become members of the College if

they chose, providing there was no want of knowledge and disinclination to pay the fees. On that ground alone he should support the motion, and all the more readily because he took it in connection with what the President intended to propose at the end of the meeting—namely, the holding of the next annual meeting in Edinburgh. This, in connection with opening the door to the holders of the certificates on moderate terms, would go far to remove the objections urged against the localization of the College in London. He readily gave his adherence to both the proposals.

Mr. GOWING said that some time ago the bye-laws were suspended for three years for the purpose of admitting into the body corporate those who held the Highland and Agricultural Society's certificate. Ample time was then given for such to avail themselves of the opportunity given them, and if they had neglected to do so he did not see why the Council should open the door a second time. Such a course, he thought, would be an injustice to the students who had gone to the Agricultural College and the other schools for their teaching. It might be said that the education and knowledge at that particular period was insufficient, and that now the teaching was of a higher standard. Probably this was the case, but there was no guarantee that it was so.

Mr. COX said that, considering the interest the President had taken in all matters relating to the profession, he opposed the motion with extreme reluctance; but the matter was a serious one, and he thought the greater portion of the profession, those engaged in private practice as veterinary surgeons, were, in this particular instance, entitled to some degree of consideration, because they must know better than any the individual character of the several persons practising in their particular districts. Considering the time and trouble expended on the bye-laws, it was, to his mind, extremely undesirable that they should be suspended. He felt he was only the exponent of the general feeling of the profession when he predicted that the motion would not be carried; but if it were carried a question would arise of great importance to those practising under the diploma of the Royal College of Veterinary Surgeons. In a large community like theirs, it was too much to hope that all its members should turn out to be of the representative class which could be desired; but all had entered the profession by the legitimate portal. It would, however, be an injustice to introduce amongst them any who might be practising in such a way as could only tend to bring discredit on the members of the Council themselves, and would be a great disadvantage to their confrères. If the motion should be carried, he thought that another step should be taken, either as a rider to it or as another motion to be passed contemporary with it,—to the effect that no individual holding the certificate of the Highland and Agricultural Society should be admitted as a candidate for examination until his name had been placed prominently before the members of the profession practising in the same district. He would propose that the radius should be fixed at a mile for London, and that in provincial towns it should be from ten to twenty miles; and the veterinary surgeons in these districts would be in a position free from all bias to give their opinion as to whether or not the candidate was one who would cast discredit upon the profession. Some guarantee of the moral character and professional bearing of a man was requisite, before he should be admitted by an irregular opening.

Mr. BLAKEWAY asked how long a student must study before he could pass the Highland and Agricultural Society.

The PRESIDENT said that the terms were the same as the old terms of the Royal College of Veterinary Surgeons. Whether they had instituted a third examination he could not say; but he was in a position to state, from inquiries he made at Edinburgh a year ago, that they had not.

Mr. BLAKEWAY said the reason he asked the question was because the motion would lead some to suppose that an injustice would be done to the students, because no student under the rules could pass his first examination until he had studied three terms at the College, nor his second examination until he had attended two other terms.

Mr. GREAVES asked whether it was the President's intention that the recently passed students at Edinburgh of the Highland and Agricultural Society should come in at the door which it was proposed to open. He hought that a date should be fixed —such, for instance, as that the students must have been in possession of the Highland and Agricultural Society's diploma for at least three years. He was entirely in favour of the motion, and was delighted to listen to the remarks Professor Brown had made. On former occasions the opening of the door was approved of by the whole profession, because it was thought that it would tend to produce unanimity. Those who possessed the diploma of the Highland and Agricultural Society had undergone the same course of instruction as those who possessed the diploma of the Royal College of Veterinary Surgeons. Some of the best men in the profession had been taught at the Edinburgh College, and had not got the diploma of the Royal College of Veterinary Surgeons ; and he thought that on this occasion the Council were acting upon a right principle if they should agree to the motion of the President.

Mr. BATT opposed the motion with great regret, because he was perfectly convinced that any scheme advocated by the President was, in his view, for the benefit of the profession. He could not help thinking that it would be a step in the wrong direction. He had been in communication with a great number of gentlemen outside the pale of the Council—men who had their profession thoroughly at heart ; and, without exception, they were entirely against the motion. He condemned the vacillating policy of making laws one year and undoing them the next. Within the last two or three years rapid strides had been made in the profession by those who entered the colleges ; and to keep faith with the younger members of the profession, he did not think that the Council should open the back door to those who held certificates other than those of the Royal College of Veterinary Surgeons.

Mr. P. TAYLOR asked if the motion would have any effect upon the Highland and Agricultural Society as a body in foregoing their diploma. What was wanted at the present day was one Examination Board, and one diploma, and one united national corporate body. He could not see why the Royal College of Veterinary Surgeons should be so liberal as to keep throwing its door open. If those who held the Highland and Agricultural Society's certificates had the acumen and the knowledge that Mr. Greaves represented, they would think it a pleasure to come forward and be examined before the Royal College of Veterinary Surgeons. He thought the Council should make a standpoint at some period, and not admit them, because he was quite certain that an injustice would be done to the present students. He thought the matter should be more thoroughly discussed before the bye-laws were suspended, and that the Council should apply to the Highland and Agricultural Society to ascertain whether they would forego their examination. Then the door should be opened, and those who desired to come in at a particular time could do so, and could be examined for the following three years.

Mr. HARPLEY thought the discussion had been a most useful one ; but there seemed to be a doubt as to how far the motion of the President proposed to carry those gentlemen who held the certificate of proficiency from the Highland and Agricultural Society. Mr. Blakeway had raised the very important question of whether those who had passed last Christmas would come up at once for the diploma of the College ; and it seemed to him

doubtful, from the wording of the resolution, whether they could or not. He thought it would be advisable to postpone the subject to another meeting. He begged to move, "That the matter be referred back to the Council to the next meeting for further discussion, and that in the meantime the President be requested to obtain the advice of Mr. Loch as to the reading of the clause."

Mr. TAYLOR seconded the motion.

Mr. FLEMING called attention to the fact that if at any future time, as had several times lately been suggested, the Council should apply to Parliament for an Act for protection from persons who had no claim to the title it conferred, the Highland and Agricultural Society would oppose their application by every plea they could successfully work upon. There could not, in his opinion, be any harm in throwing open this door, because the Council would only be admitting men after an examination similar to that which they now required. The only exemption made would be with regard to the period of study. By opening the door as proposed, the Council would at once cut away a large portion of the ground of opposition from the feet of the Society, should they apply for an Act such as he had referred to. He thought the Council and the profession should bear this in mind by the next meeting, because it was important. Many of those who held the Highland and Agricultural Society's certificate he knew to be worthy and excellent men and highly qualified practitioners, and if they submitted to the examination he thought there would be every reason to feel that they were well qualified to be members of the body corporate.

Mr. TAYLOR remarked that members of Parliament would protect the unfortunate as well as the successful when the application for the Act was made, so that there would only be a few that would pass the standard.

Professor PRITCHARD called attention to the fact that whatever Act might be obtained would be of a prospective and not of a retrospective character, and the members of the Highland and Agricultural Society who had been practising as veterinary surgeons would not be interfered with.

Mr. HUNT thought that Mr. Fleming took quite a *couleur-de-rose* view of the character of those who represented the Highland and Agricultural Society, because there were others who hardly deserved so high an encomium ; but of course if they were tested by examinations, some men who were not of the highest character and respectability would be weeded out. The door had already been thrown open for a long time, and all the older members of the profession who had not availed themselves of it ought now to be shut out. The younger members of the profession had had every inducement to join their ranks. He admitted the value of having as many members on their side as possible, especially if there was another effort to be made to obtain a protective Act, which he had very little faith in. Individual virtue was the best protection against empirics and pretenders. He should like to support the proposition if he thought it would do any good ; but something else must happen to convince him that it was a politic action.

Mr. FLEMING said that Mr. Hunt rather misapprehended him in regard to the holders of the certificate. What he said was that he knew some of the holders of the certificate to be good men ; but, unfortunately, on both sides there were bad men.

Mr. BLAKEWAY asked if anything had been done in reference to the resolution passed at the Liverpool meeting asking the Highland and Agricultural Society to forego their diplomas.

The PRESIDENT said he had no hesitation in assenting to the motion for the postponement of the debate, because it was a question which required much consideration and much ventilation. It was all the more necessary to postpone it, because a legal question had been started, of which he did not at present see the solution. He would take care to have such a form drawn out

as would admit those only whom it was intended to admit. Some remarks had been made as to admitting by "a back door," all of which were rather beyond the question. It was not proposed to admit any one unless he was as well qualified as those who were admitted in the present day. He did not see, in answer to an objection made in the course of the debate, why the character of some men who practised as veterinary surgeons should be bad. Why should a man who was practising as a veterinary surgeon be worse than the student who had not practised? He did not wish to complicate this matter with the Highland and Agricultural Society. He brought it forward as a matter of justice to those who, in their younger days, had been advised to take an improper qualification, but who now wished, after due examination, to take out a proper one. It should be the object of the Council to limit the number of those practising without any proper qualification, and to draw them all into the body corporate, whose motto was, "Union is strength." He had great pleasure in accepting the motion for the postponement of the question.

The motion was then agreed to.

Proposed Annual Meeting in Edinburgh.

The PRESIDENT moved, "That the next annual general meeting be held in Edinburgh." He felt, he said, considerable anxiety in regard to this matter, because he was aware that several gentlemen with whom he usually acted were opposed to it. He was anxious about the carrying of the motion, because he felt that the best interests of the profession were largely interested in its success. The Royal College of Veterinary Surgeons was a national and imperial body, appointed by the Crown to control the affairs of the whole of the veterinary profession, and to conduct all the examinations throughout the United Kingdom. There was, no doubt, however, a general impression on the part of the outside world that it was a local London college, that it was connected with the London school, and was very largely under its control. If this idea were confined simply to what were usually called ill-informed persons, he should not take so much notice of it; but it was widely spread, and pervaded even the highest classes of society. This was an evil which it was in the power of the Council to correct. The way to do this was to hold the annual general meeting, this year at least, and occasionally in succeeding years, in the Scottish metropolis, under the power granted by the Crown last year. Another reason he had for wishing to go to Scotland was that a great many members of the profession had been bred in the Scottish schools. Any disloyalty—if he might use that word—which had been shown by the Scottish schools to the Royal College of Veterinary Surgeons some years ago had now passed away; and he thought it would be a graceful and a beneficial act if, the first year when they had the power, they were to hold their first annual general meeting under the new Charter in the Scottish metropolis. He therefore begged to move that the place of meeting be fixed, under the new Charter, for the next annual general meeting, at Edinburgh.

Mr. HUNT seconded the motion.

Some doubts having been expressed as to whether the Charter allowed the meeting to be held this year, or three years hence, at Edinburgh, it was ultimately resolved that, if the law officer of corporation thought that the next meeting could be held at Edinburgh this year, the Council would be glad to do so.

On the motion of Mr. DRAY, seconded by Mr. CARTWRIGHT, Mr. George Williams, of Pimlico, was elected a member of Council, in the room of Mr. Talbott, resigned.

This concluded the business of the quarterly meeting.

A SPECIAL MEETING

was afterwards held, for the consideration of Bye-law 50.

The PRESIDENT moved that, after the words "veterinary surgeon," the following words be inserted: "or gentlemen who have passed the Civil Service or Army examination held by the Civil Service Commissioners."

After a few words by Mr. REYNOLDS in opposition to the motion, and an explanation by the PRESIDENT, the motion was agreed to.

The Council then adjourned.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT a meeting of the above Society, held at 10, Red Lion Square, W.C., on Thursday, December 6th, at 7 p.m., the President, J. W. Axe, Esq., in the chair,—

Mr. THOMAS MOORE, in exhibiting the heart, lungs, and larynx of a rabid dog, said the dog had been on the tramp for three days before being shot; there were all the usual *post-mortem* appearances of the affection here; the lungs showed inflammatory spots, and the right ventricle of the heart had several ulcerations externally.

The SECRETARY (Mr. James Rowe) said he was constantly having inquiries made of him about Rabies and Hydrophobia, the supposed greater prevalence of which he was rather disposed to doubt; and, in answer to the President, said he could not help thinking that the public journals had largely exaggerated the question, and the prevailing panic was the result.

Mr. J. WOODGER, jun., affirmed that he differed with the Secretary, having had recently a number of cases brought under his notice.

Mr. J. MOORE, sen., said he had no doubt Rabies was prevailing to a great extent, having only a few days ago had two cases, and just prior to that two others at one place. He quite admitted great mistakes were made, and many animals suffering from fits were regarded as rabid. In some instances the symptoms were so obscure that one could not define the nature of the disease; on the part of the public, therefore, errors of judgment prevailed to a great extent.

The SECRETARY remarked that a dog, having been ill two days, was recently submitted to him, showing signs of sore throat. He examined the throat on the evening of the second day; and inserting his finger in search of any foreign matter (the presence of which was suggested by his manner of shaking the head), the dog instantly vomited. Being summoned early the following day, he noticed the expressive howl as he approached the room where the dog was kept, and found the lower jaw paralysed, convulsions present, powerless but repeated efforts to drink, only being able to work the water or milk into a spume; there was no tendency to bite. He knew the dog well, and could gain no trace of the source of infection, nor yet bring the owner to believe in the nature of the disease, who preferred rather to regard it as the result of a fall between the platform and carriage of a railway some weeks before. He remembered that occurrence, but it had not appeared to affect the animal then.

Another veterinary surgeon, who saw the dog, confirmed the Secretary's opinion.

Mr. J. MOORE, sen., would like to give expression to the view that a dog might be so far affected with the disease as to communicate it to another animal, and yet recover himself—following the well-known examples of other contagious diseases. To bear out his view, he mentioned one recently occurring near Maidstone, where a death from Hydrophobia was recorded, but the dog that bit him continued well.

The PRESIDENT observed that within the past two years over twenty cases of well-defined madness had been brought under his notice; and he might also add that during the previous ten years he did not suppose he saw half the number. If his observations were correct, there could be no doubt as to the very great prevalence of Rabies during the first-named period, and that it was more prevalent now than at any other time within his recollection. In the village in which he lived, he had had no less than four cases within the last seven months.

Mr. MOORE, sen., said a short time ago he went to Nottinghamshire to see a pack of hounds, all the young ones of which had to be destroyed in consequence of Rabies communicated by a stray dog to one of the pack. He remembered two pregnant mares that died of Rabies, where the same appearances were found in the fœtuses as in the mares. One of the mares lying down put out the foot like a dog, and was more irritable on one side than the other.

The SECRETARY referred to a case he witnessed some years before, where the horse bit his fore-limbs from the knees downwards, butted the wall like a stag, abrading the skin by the actions, and roared perpetually—the saliva streaming from the mouth.

The SECRETARY produced the larynx of a cow, with portions of the trachea, which was a perfect specimen of tubercular ulcers. The Society was indebted to Professor Walley, of Edinburgh, who had forwarded it for inspection. The subject was a cow seven years old, that had been sent for slaughter. She had an unthrifty appearance, laryngeal cough, and slight roaring; pulse 80, respiration normal, temp. 103° F., muzzle dry, and skin icteric. The *post-mortem* showed tubercular disease of the right lung and liver. In each case the mucous layer showed extensive and very characteristic lesions, in which the transverse tracheal muscle was involved. The Professor also mentioned a tubercular disease in a heifer, where large depositions of fat existed in the interstices of the tubercular masses of lung—the right being a mass of obsolete tubercle, weighing between sixty and seventy pounds.

The PRESIDENT then observed: "Some time ago, in discussing the question of Pig Typhoid, I ventured to remark that, with certain facts before us, it is difficult to overcome the idea that ere long the study of comparative pathology will be the means of elucidating some of those vital points in the diseases of man which have hitherto remained obscure. That view, I am happy to know, is gaining ground; and science is indebted to our colleague, Mr. George Fleming, for directing public attention to the serious neglect with which the subject has been treated. I propose to ask your attention to the consideration of the structural changes of the vascular tissue, identical with those found so commonly in Bright's Disease of the Kidneys, the etiology of which cannot be considered in regard to the lower animals, on account of a complete absence of clinical facts. In the human subject it is applied as a generic term, embracing a variety of structural changes of that organ, both acute and chronic, and is commonly identified with albuminous urine—frequently with a dropsical state of the body, and various acute and chronic complications; and among the latter, hypertrophy of the left ventricle of the heart is very common. Although various authors antecedent to Dr. Bright directed attention to the existence of Dropsy and albuminous urine with disease of the kidneys, it is to his researches we owe our present knowledge of the various changes the kidneys undergo, and much that is known of the remote effects that complicate it. More recently others have added fresh and important truths to this branch of renal pathology. In 1850, Dr. G. Johnson, at the Medical Chirurgical Society, read a paper in which he pointed out, for the first time, that in the chronic affection, the small renal arteries became hypertrophied in their muscular layer, ascribing it to continued

exalted contraction engaged in propelling the blood through obstructive capillaries. When, however, the researches of Bernard and Brown-Séquard made it appear that the vaso-motorial function is to regulate the blood supply to the requirements of the various tissues, Dr. Johnson recognised an error in the view he had propounded; and in a second paper, read in 1867, corrected his statement, and likewise made it known that the thickened state of the arteries is not confined to the kidneys, but prevails more or less in all the small arteries of the body. He concluded from this that the muscular hypertrophy was induced by blood contamination, and the cardiac hypertrophy was secondary, consequent on exalted arterial function. This assumed, the impaired condition was due to a general reflex condition of the arterioles; and to overcome the resistance on the blood-flow, the physiological action of the heart is increased, and hence the hypertrophy; but it was more especially in reference to the changes the arteries undergo that he wished to draw attention, as on that point pathologists were not agreed. In 1872, Sir W. Gull and Dr. Sutton, at the Medical Chirurgical Society, confirm the observations of Dr. Johnson in great part; but they question, almost to a denial, the existence of a hypertrophy of the arterial sheath. Dr. Dickinson, however, speaks with great impartiality confidently of hypertrophy of the muscular layer and *tunica adventitia:* this was certainly the condition of the specimen he exhibited. Whatever might be the condition of these changes, it was pretty well agreed that in man its cause was blood contamination; but whether the urinary excreta were alone concerned was doubtful. He hoped soon to be able to supply some clinical and pathological data in reference to the malady. He next called attention to some portions of muscle that had been forwarded by Mr. Jackson, M.R.C.V.S., of Sheffield, who, in his official capacity of inspector of meat, observed some exhibiting a peculiar abnormal appearance—the sectional surface being traversed by a number of coarse, white, branching lines, intercepting the larger bundles of muscular fibres; smaller ones are visible, separating lesser fasciculi; also round white spots, passing from the inter-fascicular septa: these are firm, and capable of being drawn out by forceps, appearing then as round bands, and if cut transversely show a minute aperture. When the flesh was first received at the Veterinary College, it appeared of a bright-red colour to the unaided eye, and perfectly healthy in other respects. Having microscopically examined them, he submitted the slides, that these lesions might be seen, and also one of normal (ox) muscle for comparison. Some of the arterioles exhibited a decided thickening; where more advanced, the vessels were cloudy and obscure, and in some instances altogether degenerated. As the disease advances, it would appear that the muscle is resolved into a fibro-granular condition. There was also a swollen and more or less translucent condition of the fibroid growth, and the development is also noticed in the contiguous inter-fascicular septa. The thickened walls of the vessels, and hypertrophied connective substance of the muscle, is in parts infiltrated with small round cells; and scattered through the latter are various-sized groups of hæmatin granules. In many instances the flumen of the vessel is reduced to a mere drink, or completely obliterated by the contracted new material."

Mr. MOORE, sen., asked if the vessels were hypertrophied before the kidneys were otherwise diseased.

Mr. HOWARD said, in Bright's Disease Albuminuria prevailed to a large extent, which kept the body in a state of emaciation, and eventually caused death by inanition. The disease of the capillary arteries described was quite new to him. It was a received and fixed doctrine among surgeons, that the farther you go away from the centre of the circulation, the less likely are you to meet with diseased changes in the arteries—those near the heart being the most affected. In Albuminuria, the blood is probably raised in

density ; and if so, the hypertrophied condition of the heart may be explained by the increased propelling power to which it would excite the organ.

Mr. BURRELL said he took it that in renal disease, attended with structural change, as in most others, there was first functional disorder ; and if they admitted this to be the case here, the retention of excreta within the blood, which should have been thrown off, then they admitted the cause of irritation to the vaso-motor nerves, and the cause also of contraction of the muscular coat of the arteries. He believed there were instances of Bright's Disease when the kidney was enlarged and not contracted ; and it would be interesting to find whether there were fibroid changes of the vessels in the two examples.

Tubercular Meningitis.

The PRESIDENT said he had received from Mr. Blakeway, M.R.C.V.S., of Stourbridge, the head, portion of the lungs and liver of a cow. The clinical notes were brief. The patient was a well-bred short-horned beast, his property. In the spring of the present year she gave birth to a calf, which she reared : at this time appeared to have good health, gave a fair quantity of milk during the summer, but was noticed to separate herself occasionally from the herd. Later on, a profuse discharge issued from the near eye, and vision became somewhat defective. The appetite, however, was not impaired, and the breathing and pulse said to have been but slightly disturbed. In this state she continued for a short time, till cerebral symptoms appeared ; ultimately became paralysed and comatose, and she was destroyed. The brain which he produced he had removed, and would relate its condition. The superficial vessels were largely charged with blood, especially the arteries, which gave it a bright-red appearance. The *pia mater* of the base —as was well apparent—was lost in a thick mass of confluent tubercles, extending from the medulla oblongata to the fissure of the pylorus, and in a lateral direction to the sides of the hemispheres. In the latter situation a small quantity of gelatinous lymph occupied some of the sulci ; and high up on the frontal lobes miliary tubercles could be distinguished here and there in the line of arteries connected with the *pia mater*. The cineritious structure was pasty, and, like the entire organ, exhibited a decidedly œdematous condition : the lateral ventricles contained no fluid, nor did the size and condition of the cavities indicate its having existed. The septum lucidum was intact ; the foramen of Munro was of normal dimensions ; the ventricular lining smooth and bright ; the absence of fluids in cases of this description is a rare exception to a very general rule. If we examined the specimen he had under the microscope, we should find the miliary tubercles planted on the arteries, where they appear as minute, circumscribed, and more or less rounded projections. Under a higher power they are seen to be contained in the peri-vascular sheath, and composed of lymphoid corpuscles ; the tubercle elements extend far beyond the aggregate group, appearing as scattered cells in the sheath of the vessel. The portions of lung and liver exhibit very extensive lesions,—the former studded with confluent granulations and softening masses, the latter largely excavated and disintegrated tubercle. His brother, Mr. Joseph Axe, of Doncaster, forwarded him a horse's brain exhibiting extensive tubercular disease : the *pia mater* being largely invaded with a sulphury-looking layer of confluent granulations. Both ventricles were largely distended with fluid, and the right frontal lobe contained a superficial cavity filled with distinguished tubercles, and several other small caseous masses scattered about. Tubercle in the brain of the horse, so far as his experience went, was rare.

In reply to Mr. Moore, he believed the disease in the arterioles of the kidney to be simply a local manifestation of a general disease of the vessels.

In reply to Mr. Howard, he did not believe the amount of fibrous tissue contained in a muscle would affect the constitution of the arterioles. In the specimens before him, the altered structure of the vessels could not, he thought, be accounted for in any other way than by regarding it as the outcome of a diseased process. In reference to the arteries generally, it was true that the large ones were more commonly the subject of disease; but in such cases they had to deal with inflammatory affections, which did not appear to be the case here. In reply to Mr. Howard's query as to Hypertrophy existing in the large white kidney, he believed it did,—it was recognised as a certain stage of Bright's Disease, which usually results in the contracted form.

Mr. H. J. Hancock, of East India Road, was elected a Fellow, and Professor Pritchard was proposed, and will be duly balloted for.

The meeting then adjourned. Present 12 Fellows and 4 visitors.

JAMES ROWE, JUN., *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above Society was held at the Blackfriars Hotel, Manchester, on the 19th of December, Mr. Tedbar Hopkins, President, in the chair. The following gentlemen were present: Messrs. P. Taylor, T. Greaves, T. Taylor, S. Locke, W. A. Taylor, J. Lawson, E. T. Faulkner, of Manchester; C. Elam, G. Morgan, Leather, Moore, of Liverpool; W. Cartwright, Whitchurch; J. Howel and Faulkner, Rochdale; J. Marshall, Knutsford; J. Prescott, Pendleton; A. Darwell, Northwich; Beard, Macclesfield; J. Bunnell, Oldham; W. Woods, Wigan; Paulden, Bury; A. Brooks, Pilkington; and the Secretary.

Letters of excuse were read from Professors Williams and Pritchard, Messrs. M. E. Naylor, G. Heyes, R. S. Reynolds, and Mr. Hart.

Mr. P. TAYLOR proposed for election Mr. E. T. Faulkner, of Rochdale, seconded by Mr. Faulkner, of Manchester. Carried unanimously.

Mr. BEARD, of Macclesfield, then exhibited a morbid specimen, consisting of the bones of a malformed fœtus, in which a portion of the spinal column was absent, and the limbs were distorted in an extraordinary manner. Mr. Beard described the position of the fœtus *in utero*, and the difficulty he had in extracting it.

Mr. DACRE then placed upon the table a specimen of Colloid Tumour, taken from the abdominal cavity of an aged mare. The mass of tumours (a portion of which only was exhibited) weighed about thirty pounds, and varied in size from a walnut to a cricket-ball; they were globular in form, and consisted of an external membrane of dense structure, and contained a gelatine-like substance. These tumours, which must have been some length of time in course of formation, caused no disturbance to the health of the animal until some six weeks previous to death, when general dropsy set in. A *post-mortem* examination shewed extensive dropsy in both thoracic and abdominal cavities,—the two containing together about nine gallons of fluid, straw-coloured, and quite clear, containing no flocculi, or any products of acute inflammation. The flesh had a good healthy colour, and the abdominal cavities were lined with fat.

Mr. P. TAYLOR opened the discussion by giving it as his opinion that the specimen exhibited was a tubercular deposit; but after a more minute examination of the tumour, the general opinion was, that if the case was not one of Colloid Tumour it was certainly not the result of tubercular disease. Mr. T. Taylor, however, promised to procure the opinion of a microscopical expert as to its histological structure, and to present the report at the next meeting.

Mr. P. TAYLOR then read an essay on "Spavin and Articular Disease of the Hock Joint." This paper, although but short, contained a large amount of instructive matter, and produced a very varied and interesting discussion, —particularly so as regards the treatment of this disease; but nothing of a novel character was elicited except from Mr. P. Taylor, who recommended injections of morphia or atropine, hyperdermically, over the seat of disease; and Mr. C. Elam, who, in cases of Bone Spavin, performed the operation of periostomy with good results.

The President's paper on the "Antiseptic Treatment of Glanders," for want of time was postponed to the next quarterly meeting.

The election of office-bearers for the ensuing year was then proceeded with. Mr. T. TAYLOR proposed, and Mr. DACRE seconded, that Mr. Tedbar Hopkins be re-elected to the chair. Carried unanimously. Mr. DACRE proposed, and Mr. W. A. TAYLOR seconded, Mr. Sam. Locke as Secretary. Carried. Mr. Alex. Lawson was re-elected Treasurer, proposed by W. A. TAYLOR, and seconded by Mr. FAULKNER. Messrs. Peter Taylor, Thomas Greaves, and W. Dacre were elected Vice-presidents, and Mr. John Lawson and Mr. Tom Taylor as Auditors.

Mr. T. HOPKINS presented the Society with a handsome ballot box, and suggested that the business of the Society should be carried on by that mode of voting.

A cordial vote of thanks to the chairman, essayists, and retiring officers, closed the proceedings.

SAM. LOCKE, *Hon. Sec.*

MONTREAL VETERINARY ASSOCIATION.

AT the meeting of this Association held on December 20, 1877, a large number of members and several visitors were present. The President, Professor McEachran, occupied the chair.

A very interesting paper on the "History of the Veterinary Profession" was read by Mr. C. J. ALLOWAY, V.S., who, after tracing the rise and progress of the art through various stages in the world's history, concluded by pointing out the very rapid progress it has made during the present century, not only by the higher and more thorough educational requirements, but in the literature of the science, hitherto scant and imperfect, but which is now extensive and scientific. The days of farriery, when ignorance and cruel blundering prevailed, are rapidly being replaced by thorough scientific investigation and enlightened practice. The art so long delegated to the farrier and groom is now the profession of the educated scientist. With such universities as the McGill, through her medical faculty identified with this science, and her example about to be followed by the University of Oxford, not only the medical men but medical journals in all the European countries invite the co-operation of the sister sciences, and go hand in hand in the same fields of scientific research. There is a sure and glorious future for this important branch of medical science.

Mr. F. W. MCLELLAN, Bridgeport, Connecticut, also read a very interesting communication on the disease in horses known as Hæmoglobinurea, being the report of a case treated at the college hospital during the present session, in which he pointed out the circumstances under which it occurs as being errors in feeding. Thus a horse in regular work from some cause is kept in the stable for several consecutive days, during which time he is allowed as full a supply of food as when at work; on being taken out of the stable, in apparent good health and exuberant spirits, after proceeding a mile or two he suddenly stops, crouches, and stiffens in the hind-quarters, which become paralytic. The muscles become hard, swollen and immov-

able. The urine is thick, dark in colour, resembling porter, and voided with difficulty. The clinical notes of the case, the *post-mortem* lesions, and microscopic changes in the tissues, carefully made and recorded by Professor Osler, were minutely described and illustrated by drawings. Owing to the pathology of the disease being imperfectly understood and different theories advanced by eminent investigators, the discussion was both animated and instructive, nor was it closed, but deferred till another meeting. The proceedings closed at a late hour.

At the meeting to be held on the 3rd January, a paper was to be read by Prof. McEachran on "The Law governing the Sale and Warranty of Horses," and by Mr. Parkinson, Bridgeport, Con., on Tetanus.

Obituary.

THE following deaths have been reported to the Registrar of the Royal College of Veterinary Surgeons :—

	Diploma dated
Mr. Thomas Twelves Hudson, Retford, Notts .	Dec. 21, 1853.
„ James McKenna, Belfast	April 26, 1865.
„ G. E. Donaldson, Epsom, Surrey . . .	June 12, 1844.
„ John Jenks, Veterinary Inspector, Dublin .	Dec. 18, 1850.
„ Henry Arthur Muffitt, London . . .	March 20, 1875.
„ Wm. Scriven, Aberford, Yorkshire . .	1836.
„ Richard Horner, Keighley	April 27, 1865.
„ J. G. Dickinson, Boston	May 24, 1853.

We have also to record the death, on December 21, aged sixty-nine years, of Mr. George Harvey, M.R.C.V.S., late of Great Yarmouth, who graduated so long ago as 1833. Mr. Harvey practised for many years in Great Yarmouth, where he was much and deservedly respected ; and on retiring from the profession he resided at Belton, where he occupied himself in farming on land adjoining that of Professor Varnell, with whom he was on most intimate terms. Death was sudden, and was due to apoplexy. As evidence of the esteem in which Mr. Harvey was held, we extract the following reference, which appeared in the *Yarmouth Independent* : "At a vestry meeting held in Belton, on Thursday, to elect a churchwarden in place of the late Mr. George Harvey, the following resolution was passed unanimously : 'This meeting desires to record their deep regret at the death of Mr. George Harvey, not only as respects the loss of his services as churchwarden—an office which he has filled for some years, with credit to himself and to the satisfaction of the parish—but also as a man of unusual intelligence, high honour, and sterling worth, respected as a neighbour, and beloved by all who enjoyed his friendship.' We cheerfully comply with a desire expressed at this meeting that publicity should be given to this memorial of a worthy and estimable man."

Army Veterinary Department.

Gazette, January 22.

ROYAL ARTILLERY.—Veterinary-Surg. Herbert Rangeley resigns his commission.

In India, Veterinary-Surg. J. A. Woods, 9th Lancers, has leave to England to appear before a medical board.

Notes and News.

HYDROPHOBIA FROM THE BITE OF A NON-RABID DOG.—Mr. Johnson, coroner, held an inquest at the Stockport Infirmary, on January 3rd, touching the death of William Hulme, aged five years, who died from the effects of a bite of a dog. On the 9th of November the child was going to school with a number of other children, when a small spaniel dog ran at him, knocked him down, and bit him on the lower lip. The wound was cauterised, it healed, and the boy went to school as usual. On Saturday night last, when about to be washed, he vomited, and seemed exceedingly terrified at sight of the water in the vessel. He, however, went to school on Sunday morning. Great efforts, both by persuasion and the offering of toys and other things, were made to induce him to partake of water and eatables. He appeared anxious to do so, but was frightened despite the medical treatment. The characteristic symptoms of the disease increased in frequency and severity, and he died exhausted the following morning. A verdict of death from Hydrophobia was returned. The jury recommended the dog to be destroyed. From the latter statement, it would appear that the dog whose bite produced Hydrophobia was alive when the inquest was held—nearly two months after the injury was inflicted.

HORSEFLESH IN PARIS.—M. Decroix has just given a dinner at his apartments in the Faubourg Saint-Germain, at which the *menu* was almost exclusively composed of horse-flesh under different forms. The party included the representatives of several London journals, and derived a certain interest from the host being about to extend his crusade to England, by contributing to found shops for the sale of horseflesh in the English capital. He has been so far successful in Paris that there are now about sixty establishments open in the most populous districts, and over nine thousand animals were slaughtered for food during the first nine months of the year. The dealers have, in fact, to go further afield to obtain a supply of horses—the number of those killed by accident or disabled around the capital being now insufficient. Among the dishes specially appreciated by M. Decroix's guests were the soup, the fillet *en daube*, and the roast joint, which was particularly tender. The plum-pudding made with horse-suet also deserves mention. In reality, but for the repetition of the same meat in the courses, the guests engaged in conversation would scarcely have been aware that they were feasting on anything unusual; but as the object was to permit the company to taste horseflesh under different aspects of cookery, the want of variety was inevitable.—*Galignani.*

SHEEP-WORRYING DOGS.—On the motion of Sir George Douglas, a return has been furnished of the number of sheep killed by dogs in most of the counties of Scotland lying south of the Forth during the last three years. The whole number of cases reported was 633, and the number of sheep and lambs killed 2,015. In 408 out of the total number of cases the owners of the dogs were not discovered; in 134 the owner was found, but no compensation was made; and in 91 cases compensation was paid by the ascertained owner.

VETERINARY HONOURS.—The centenary of the Vienna Veterinary Institute occurred last year—the school having been founded in 1777 by the Emperor Joseph II. To mark the event, the very distinguished veterinarian and director of this celebrated establishment—Dr. Röll—received the title and character of "Hofrath," or Counsellor of the Court; while Professor Armbrecht had conferred upon him the cross of the order of Francis-Joseph. To commemorate the centenary of a school which has proved so beneficial

to Austria and some other countries during so long a period, and which has produced such distinguished teachers as Wolstein, Pessina, Waldinger, the brothers Veith, Hayne, Hörman, and others, the Chief Veterinary College in Russia—the Dorpat Institute—bestowed its honorary degree on Professors Armbrecht, Forster, and Zahn. We may remark that the same Institute has recently conferred this degree upon all the most renowned veterinarians on the Continent. England, of course, was not recognised.

ALLOWANCE OF FORAGE IN THE FRENCH ARMY.—The paucity of food supplied to horses in the French army is beginning to attract the attention of the military authorities. In the cavalry of the line, according to the *Avenir Militaire*, the ration consists of 4·150 kilogrammes (9 lb.) of oats, 3 kilogrammes (6·6 lb.) hay, and 4·750 kilogrammes (10½ lb.) of straw. In Germany each horse would get 4·750 kilogrammes (10½ lb.) of oats, 2·5 kilogrammes (5½ lb.) of hay, and 3·5 kilogrammes (7½ lb.) of straw. The German ration, therefore, it will be seen, comprises more corn and less straw, and, the *Avenir* believes, enables the German cavalry to better endure the fatigues of a campaign. The figures given above refer to ordinary times; on active service, the horses of both armies receive an additional quantity of oats. The result of the deficient supply of nutritious food is that the commanders of mounted corps, in order to spare their horses as much as possible, have to curtail their work; and this again tends to lessen the efficiency of the army generally.

HYDROPHOBIA IN CORNWALL.—At the county sessions held at Bodmin, on January 1st, the Chief Constable for Cornwall reported that between the 1st of July and 30th of December, 140 dogs had been destroyed, forty-four of which were stated to be in a rabid state. Twenty-five persons had been bitten, two of whom had since died. Nineteen cattle and thirty sheep had also been bitten, and of these fifteen and twenty-nine respectively had died or been destroyed in consequence. There had been 148 prosecutions, 146 of which had been followed by convictions for infringements of the Dog Act. The greatest number of cases had appeared in North Cornwall. The south-western parts appeared to be entirely free.

COMPRESSED FORAGE FOR THE RUSSIAN ARMY.—The *Revue Militaire de l'Etranger* copies from a Russian source the following particulars of the manufacture of compressed forage for the Russian cavalry. The factory is established at St. Petersburg, in the Sixth Company of the Ismailooski Regiment. There are five ovens of Austrian pattern, capable of baking 1,000 poods (sixteen tons) of forage in twenty-four hours. The forage consists of an admixture of 30 to 40 per cent. of oatmeal, 30 to 50 per cent. of peameal, 10 to 20 per cent. of barley-meal, 15 to 20 per cent. of linseed-meal, and 1½ per cent. of salt. As the pea-flour is apt to produce flatulence, dextrine is added to it by a preliminary roasting on hot iron plates. The ingredients are mixed in a sort of dough, and kneaded by tramping with the feet in large wooden vats. The dough is then rolled in sheets of the thickness of a man's finger, stamped out in round cakes, and baked into biscuit. Each biscuit is about two verschocks (3¼ inches) in diameter, and half a verschock thick. Twenty-six to twenty-eight of these biscuits are strung on a small wire rod, forming a cylinder of 4 lb. weight, and constituting a day's ration for one horse. Ten of these cylinders can be slung on the saddle by a dragoon—being equivalent to the day's forage. The biscuits are baked in various parts of St. Petersburg,—a large proportion at the American Steam Bakery in the Vassily Ostroy. The factory can turn out 20,000 forage rations daily. The Ismailooski regiment supplies eighty bakers, besides which 230 women are employed at the rate of 2*s.* to 2*s.* 6*d.* a day, and sixty workmen

at 3*s.* to 6*s.* a day in packing. A 4-lb. cylinder of compressed forage is said to be equal to 10½ lb. oats. Whether the horses are of the same opinion we are not told.

Rabies in Lancashire and Cheshire.—At the County Magistrates' Court, Liverpool, on January 21st, Inspector Johnston made application to the presiding justices for an order for the confinement of all dogs within the Kirkdale division of the county, owing to the prevalence of Hydrophobia. He stated that on the 26th December, at Town Row, a large black dog bit seven sheep out of a flock of thirty, and a few days afterwards Mr. Welsby, veterinary surgeon, saw them, and pronounced them to be suffering from Hydrophobia. On the 11th inst., another dog in the same neigbourhood bit eight dogs belonging to a gentleman at West Derby. All these dogs had been destroyed. On the 27th December, Mr. N. H. Ocleston, Alderhay, had a pig bitten, and on the 19th inst. it was found to be suffering from Hydrophobia, and was destroyed. Again, on the 12th inst. a large black dog bit several other dogs and a boy at Fairfield, and was pursued to Middleton by Surgeon Rossiney, who succeeded in killing it there with the assistance of the borough police. On the 19th inst. Police-constable Harlow saw a large brown retriever bite several dogs and some hens, and, procuring a gun, he shot it. An order was granted, to be in force to the end of February.

On the 12th of last September, a mad dog bit three persons and a horse at Tarporley, Cheshire, and was pursued and then killed. Three weeks afterwards the horse showed all the symptoms of Rabies, and was shot. Subsequently two of the persons bitten succumbed to the dreadful disease; and on January 21st, the third victim—a woman—died after fearful agony. Mr. Churton, the coroner for the county, has communicated with the Lord Lieutenant, pointing out the prevalence of Rabies, and asking, in pursuance of a recommendation of the jury at the last inquest, whether some steps cannot be taken to allay the excitement naturally felt by the public, by placing dogs under strict supervision.

Correspondence, etc.

SPURIOUS TITLES.

To the Editor of the Veterinary Journal.

Dear Sir,—Although I studied at a Scotch college, and hold the certificate of the Highland and Agricultural Society, I cannot fail to see what I take to be radically wrong in the letter of our friend Mr. Gerrard; but before endeavouring to point out this, I must say that I have neither the time nor inclination to enter into a controversy on the affixing certain letters to one's name.

I can imagine a man of inferior ability, or one in the folly of youth, trying by a *ruse* of this kind to impose himself upon the world, as an individual of superior ability; but it is not so with Mr. Gerrard; *he* has, if he will pardon me for saying so, allowed his patriotism to overcome his better judgment.

And to hear one of his nationality saying, "I cannot, I dare not, I will not stand by without raising my voice or wielding my pen against the continual croaking about Royalty, and these attempts at raising a prejudice against *one document in favour of another, because, forsooth, one is not honoured by Royalty*," is just a little effervescence that will speedily evaporate, I trow. The differ-

ence between the two is much greater than simply being honoured by Royalty. One is the diploma entitling the holder to practise the "art and science of veterinary surgery and medicine," given by the duly and only legally authorised licensing body of the said profession; the other is the certificate of an Agricultural Society.

As a profession, we are not much indebted to Royalty, and still less to the Highland and Agricultural Society of Scotland, established by *Royal Charter*, A.D. 1787,—not as a profession, but what it is, and ought to be, an Agricultural Society. The fairness of the examination has nothing to do with the question. Any body of men, or even a private individual, might commence giving certificates after a fair examination, so far as it goes; but that would be no reason for permitting them to continue. Is the M.D. of Glasgow or Edinburgh given by an Agricultural Society? The Society is a powerful and wealthy body, and has no doubt done what it thought best for Scotland, which did not require highly educated scientific men, but plain practical men—just a shade above the blacksmith or cowleech, willing to do a great amount of work for little pay. What is the result? Why, the social status of the profession north of the Tweed is much lower than south of it.

There undoubtedly was a time when our profession was at such a low ebb that it was glad to lean upon anybody or anything for support; but surely babydom is past. And now that we are trying to prove that we have attained our majority, and are able to walk without the aid of chairs and tables, it is hard to see the efforts so lamentably misconstrued.

The question is asked, what has the R.C.V.S. done for the profession? Just as well ask what the British Government has done for Great Britain! Mr. Gerrard surely forgets that he is a part of the R.C.V.S., and its lethargy in times past is the fault of the individual members.

Why throw stones at it when it is rousing itself? Rather should he raise his voice and wield his pen to help it on.

The R.C.V.S. Council is our governing body. We are the electors, and if Mr. Gerrard will do more for us than those who are in, he shall certainly have my vote and interest.

Honest united effort will gain us protection, and put a stop to quackery in less than thirty years. Would you be surprised to hear that this Highland and Agricultural Society, and its certificate, are the great stumbling-blocks to the obtainment of an Act of Parliament to prevent quacks and quackery?

The quotation from the *Lancet* I endorse, but it does not say that the members of a profession shall personally support a society that prevents the licensing body from obtaining just protection for its licentiates.

It is not at all strange that a little sarcasm should be levelled at an honest effort to stimulate the profession by the creation of the Fellowship degree; and when Mr. Gerrard ceases to be a glowworm, and looks at things fairly, he will gain his Fellowship, and thus be enabled to put F.R.C.V.S., instead of E. and L., at the end of his name.

Yours faithfully,

"NIL DESPERANDUM."

To the Editor of the VETERINARY JOURNAL.

SIR,—As I also am a graduate of the Edinburgh Veterinary College, will you kindly grant space to show why I, with very many others, differ from the conclusions arrived at by Mr. Gerrard, in his letter under the above heading, in last month's *Veterinary Journal?*

That some graduates from the London teaching college erroneously put M.R.C.V.S.*L.* after their names, is no reason for others from the Edinburgh

teaching college putting M.R.C.V.S.*E.* after their names; in fact, both are equally wrong, as there is, fortunately for the good of the profession, only *one* Royal College of Veterinary Surgeons for Great Britain and Ireland. We have a veterinary college in Glasgow, ably presided over by Professor McCall, —but we do not see its graduates adding to their names M.R.C.V.S.*G.* I suppose that if we had a college in Dublin, and another in Wales, say at Bettws-y-coed, we might find a practitioner who had studied at all our different teaching schools describing himself as M.R.C.V.S.L.E.G.D. and B.-y-c., which would certainly have a very imposing effect (?).

How can a practitioner describe himself as a member of the Royal College of Veterinary Surgeons of Edinburgh when there is no such institution? When he does so, he is unconsciously flying false colours, and this pernicious practice is much to be deprecated. There is only one Royal College of Veterinary Surgeons for Great Britain and Ireland, and to call it *L.* or *E.* is an absurdity.

If a veterinary surgeon wishes to convey to the public that he has studied at a particular teaching college, by all means let him do so; but let it be done in a proper manner, by saying "studied at Edinburgh," or "London," or other college, as it may be; but do not allow him to invent Royal Colleges of Veterinary Surgeons which have no existence except in imagination.

Mr. Gerrard's illustration of the Royal Society of London and the Royal Society of Edinburgh is not a very happy one. The difference of estimation in which they are held would only make comparison ungracious. As to a practitioner of medicine styling himself "M.D. of London," or "M.D. of Edinburgh," there is no deception, because he merely adds titles which are legally conferred by the universities of those cities; but it cannot be for a moment contended that, because a man has studied in two different places, he can invent Royal Colleges which have no existence, in order that he may append a string of letters to his name.

Being a graduate from the Edinburgh College, and holding also the Highland Society's certificate, I have no wish to disparage the value of the latter; but however old that Society may be (and for it I have the greatest respect), it is not the Royal College of Veterinary Surgeons, nor can it give a diploma as such. Let the Society by all means grant certificates in agriculture and forestry, and anything else that is really within its competence; but I, in common with the great majority of veterinary surgeons, now think it most injurious to our profession that any agricultural body should have the power to grant a diploma to practise a science like ours. We do not deny that the Highland Society has been of vast benefit to the infancy of the profession; but at present, except as an auxiliary, we see nothing but harm and disunion as a result of its unfortunate interference with our schools. It is obvious that the appearance of such a body as a competitor in our profession can only have an injurious effect; in fact, it tends to perpetuate the old days when there were two distinct and recognised certificates or diplomas for veterinary surgeons, and which practically amounted to seeing whether London or Edinburgh could turn out the cheapest, and consequently the worst, practitioner in the shortest time.

It would simply be the ruin of our small profession; and all the progress of the last few years would go for nought, if we had more than one body with the power of granting legitimate diplomas. When we had two, the results were so disastrous and deplorable, that to wish to reproduce such a state of things would be suicidal.

Unlike competition in trade or commerce, competition in our science to confer rival diplomas would be a struggle as to which body could do it at the cheapest rate; it would be, in short, a competition for attracting students for the sake of their fees; and the allurements held out to them would be licenses

to practise on easy terms—that is to say, superficial and almost worthless examination tests, such as obtained not very long ago.

The certificate of the Highland Society is only a cause of hurtful disunion. That it opens its examinations to every one to see and to hear is no argument that it should have the power of granting diplomas. We contend that the Royal Agricultural Society of England might just as reasonably grant degrees in human medicine, or the managers of a coal mine elect members of the Alpine Club.

It is to be hoped that we shall continue to have only one Royal College of Veterinary Surgeons working zealously, as now, for professional improvement, and to whose examination board all the teaching colleges shall send their *alumni*, to be *properly* and *impartially* tested before they are allowed to append M.R.C.V.S. to their names.

It serves no useful purpose to endeavour to disparage the term "Royal." That we are allowed to call our College "The *Royal* College of Veterinary Surgeons" is undoubtedly a great distinction and advantage. It shows that the profession has at all events received some recognition from the fountain of honour—the Sovereign of the realm. The title is much prized by many of our most distinguished regiments, and whenever assumed by authority is justly esteemed a great honour.

With Mr. Gerrard's remarks about quackery and the protection of the title of "veterinary surgeon" all will cordially agree. As to the letters M.R.C.V.S. and V.S., many impostors will venture without authority to dub themselves V.S.; but nearly all of these pretenders shrink from falsely appending M.R.C.V.S., as they do not possess the requisite effrontery to do so.

Is it not rather an exaggeration to call the ideas of our Council on education "transcendental"? "Exceedingly moderate" would be a more correct term. Education is the great moving power which will enable the profession to obtain proper recognition; and in the meantime we may rest assured that our Council is worthily fulfilling the trust reposed in it. It is compelled to progress by degrees, but it evidently loses no opportunity of carefully fostering everything which can contribute to professional improvement.

Your obedient servant,

JAMES LAMBERT, F.R.C.V.S.,
17th Lancers.

Leeds, *January 14th*, 1878.

"QUACKERY."

To the Editor of the VETERINARY JOURNAL.

SIR,—Having read the paper of Mr. Walker on this much vexed question, published in the December issue of the *Veterinary Journal*, I feel bound to say that, much as I admire his enthusiasm, I cannot quite coincide with some of his arguments. We know that almost every locality, whether or not it has its qualified veterinary surgeon, is sure to have its quack—some one who undertakes the repair of the animal machine, while he knows nothing of its construction—whose whole medical or surgical skill consists in being able to put his finger on the jugular vein and strike the fleams into the neck for any or every disease, or dash a drench into the stomach at random. Yet this is the individual whom Mr. Walker treats to a complimentary "clap on the back," by telling us that such an one has "a perfect right to utilise his knowledge;" "to pursue what course he considers best for his own interest," etc. And while this amount of sympathy is expressed for the quack, we are led to wonder why Mr. Walker does not exercise the same amount of charity

towards all sections of his professional brethren. If these statements are true in the case of the quack, they must be equally so in the case of every other person, the veterinary surgeon included; but that every man has a right "to pursue what course he considers best for his own interest" is a theory at variance with all ideas of our social relations, as well as our individual obligations, and one which, if accepted by Mr. Walker himself, would remove all his objections to the qualified man entering into consultation with the quack. This question of deliberation between the licentiate and the charlatan is one which suggests so much of the absurd and ridiculous that, were it not for the strong way in which it is brought forward, we would be inclined to accept it as quite incredible. There is, however, within the profession a form of quackery of which Mr. Walker, in his essay, does not speak, and which we think equally scandalous to anything he has mentioned. It is this: viz., that some professional men—men perhaps of standing and repute—employ non-qualified individuals, not only to assist in ordinary duties, but even to conduct branch practices under the name and title of the Principal, who thus obtains cheap services and deals out quack wares in the shape of non-professional advice, for which, under virtue of his own "V.S." or "F.R.C.V.S.," he charges full professional fees. The individual thus employed may even never have been within the walls of a college; but having gained perhaps a little practical experience under his master, or some other "knowing" one, is thus put forward for mercenary motives. Surely this is a worse form of quackery than that attributed to homœopathists. Indeed, I considered the allusion of Mr. Walker to homœopathy as exceedingly weak and pointless, except perhaps in the matter of tails! And to condemn a standing system of medicine, simply because *an influential client* uses a slang expression concerning it, seems to me a very poor way of establishing a case. Although I do not myself practise homœopathy, I believe there is truth in it, and other systems; just as I believe there is truth in other forms of religion besides that established by the nation. And I certainly should not attempt to cast ridicule on any professional brother, simply because he has, from conscientious convictions, changed his mode of practice. Let us have *facts* before condemnation; and those "stubborn chiels that winna ding," if put into the witness-box, might perhaps render evidence that in many cases would put our allopathic treatment to the blush. However, I am not now writing a defence of homœopathy, but wish simply that things may be looked at in their proper light.

By all means let us have the power of suppressing imposition; but let us not mistake a phantom for a reality, and shout for an army to destroy an ant. Indeed, it behoves us to consider whether this cry of "Down with quackery!" does not betray a certain amount of weakness within the profession, and a want of faith in its own inherent ability.

I fail also to perceive the lesson which Mr. Walker would have us learn from the members of the sister profession, who are said to "place a united front against the inroads of quackery in every shape and form." If by this assertion is meant that such united action is successful in extinguishing quackery, we have but to look at any newspaper in the kingdom to meet with its contradiction; and to witness among the advertisements a species of quackery of which our profession knows comparatively little. At the same time, I do not believe that all the quack mixtures, pills, and lotions with which the country is deluged, impair, in any sensible degree, the legitimate influence of the medical profession. And for this reason,—that their practice is based upon true scientific principles, and is, as a rule, conducted in such an intelligent, gentlemanly, and enlightened manner as to deserve the respect and confidence of the public. If they have a lesson to teach us relative to quackery, methinks it is in their entire *independence* of it.

In my opinion, those outside "parasites" who occasionally irritate our professional pride are quite as much to be held in abeyance by *individual* effort and example as by united force. I have, in more than one instance, seen the quack of a locality sink into insignificance, and cease altogether to attempt the treatment of disease, owing to the establishment in the district of a skilful, educated, and gentlemanly practitioner.

In order, however, fully to enjoy this power and influence, we must, as a profession, and, as individuals, put away all evils from amongst us, and, adopting the advice of St. Paul, "take heed that we walk worthy of the vocation wherewith we are called." We must yield neither to the conceit of appearing above our profession, nor to the fallacy of being "hail fellow well met" with everybody.

Let us keep pace with the enlightenment and aspirations of our time, combating its prejudices, examining its judgments, and profiting by its experiences. Then may we be looked upon as representatives of our country's intelligence and humanity, and not of its sectional or party feelings, still less of its quackeries, its delusions, and its cant.

I am, sir, your obedient servant,

Liverpool, *Jan. 12th*, 1878. JAMES WATSON, M.R.C.V.S.

"FASHION IN THE TREATMENT OF DISEASE."

To the Editor of the VETERINARY JOURNAL.

SIR,—It is perhaps unnecessary, and probably presumptuous in me, to further occupy your space, or tax your readers' patience on the above subject. There are a few misconceptions, however, which I am desirous of removing, as Mr. Gresswell seems somewhat in a muddle regarding my object, or the means resorted to for accomplishing it. He says "the superfluity of the double appearance of my criticism is very evident," although he cannot understand "why I should have taken the trouble to do so, seeing that his papers appeared only in the *Veterinarian*." This is something very like a contradiction. I very much doubt if the reason for its double appearance be so evident as he seems to imagine. I did not know, and indeed scarcely expected, that it would ever appear in the *Veterinarian* at all; as the past policy of that journal has been to try to suppress all light but its own or that of its satellites, and therefore I sent it to both journals. And there are plenty of precedents for such a course. If Mr. Gresswell will look into the pages of the *Nineteenth Century*, the *Contemporary Review*, the *Fortnightly*, or the *Quarterly Review*, he will find one writer upholding a certain subject in one of them, while a criticism of it often appears in another.

Not knowing whether it would appear in the *Veterinarian*, I sent it to the *Veterinary Journal*, as it is the independent organ of the profession, and I deem it my duty and consider it a privilege to uphold and support it. Indeed, the profession may well be proud of having an organ of such independent principles and literary excellence, for some of its leaders would not disgrace the pages of the *Nineteenth Century* itself. With equal propriety might Mr. Gresswell ask why the criticism of Sir Thomas Watson's paper on "Hydrophobia and Rabies" did not appear in the *Nineteenth Century*, instead of the *Veterinary Journal*.

Mr. Gresswell complains of the "peculiarity" of my criticism, even although he admits "laying himself open to it." But, indeed, he did more than this, for he invited it. Now, I cannot see that, when a man throws down the gauntlet to all and sundry, he should stipulate how he is to be attacked.

If the ordinary rules of the ring be adhered to, he cannot complain if his opponent discover chinks in his armature or flaws in his argument, and directs his shafts accordingly.

But my "peculiarity" consists, it would seem, in his not being able to understand my meaning—a fatal peculiarity indeed, if the charge were well founded. But I can scarcely believe in his sincerity, and I think his remarks prove the contrary. If I had agreed with all that he says on the subject of bleeding, its advantages, and the cause of its disuse, I imagine he would soon have made the discovery, and there would have been no need for his diatribe of doubts and difficulties.

The object of his communications seems to have been of a threefold nature. Firstly, to show that bleeding had almost gone out of fashion; secondly, that the cause of this disuse was owing to too much unity among professional men, especially the members of the medical profession, and which resulted in fashionable practice,—or, in plain terms, that we were a lot of tools or toadies in the hands of a few leading spirits, who simply gave the word of command, and we were in honour bound to obey; and, thirdly, that in doing so we were throwing away good opportunities of effecting our ends, simply because it is not fashionable, by depriving ourselves of the most powerful therapeutical agent we possess. Then a second thought seems to have struck him, for he says: "If I am in error I should be glad to be undeceived." These points, however, seem to fairly represent the object of his communications. Now, if these be true—and he says "he can establish them"—they form, I think, one of the most sweeping charges of "intellectual toadyism" that was ever brought against this or any other profession. To tell us "that we are all the victims of that huge deformed monster with a chameleon skin called 'fashion,' and that we practise our profession by its dictates," is certainly not very complimentary to our intelligence, and, in my opinion, cannot be better described than "intellectual toadyism" or "servile intellectuality."

But he seems as if he would wish to retreat from this position, and limit his charge to "several practitioners of veterinary medicine, and probably the majority of human practitioners," as he says he can establish the fact against them as being influenced "to a very great extent" by that hydra-headed monster. I am loath to believe it, but shall withhold my judgment until I see his proof.

His strictures are more applicable to the times when bleeding was used to cure "all the ills that flesh is heir to" than the present. Then, I imagine, the barber-surgeon and the village blacksmith or farrier followed instinctively the practices of a bygone and barbarous age. Now that we have a more correct knowledge of the true relations subsisting between those phenomena termed disease and those powers which we are accustomed to term the *vis medicatrix naturæ*, I do not think they are at all applicable, as we follow—or should follow—the dictates of reason and common sense. Though the knowledge we possess may never rise to certainty, it does not follow that we may never depend upon such knowledge as we have.

I endeavoured to show that, although bleeding as a therapeutic agent was not so much used now as formerly, it was still sufficiently prevalent—indeed, as I thought, too much so, according to our present knowledge of disease—and therefore Mr. Gresswell's charge against us was chimerical, and he was fighting a phantom of his own creation. Nor do I think that it is what Mr. Gresswell decries and describes as "union" that has brought about the change in the treatment of disease, even in the medical profession. I can scarcely conceive of such a union as he describes, which, when carried to excess, "always puts a check upon originality, and brings about a lethargy antagonistic to progress, by putting all on one level." I incline to the belief

that if we had more union and more interchange of thought, we should have more reason, more progress, and probably less of this spoliative remedy. We seem to be too jealous of any little knowledge we possess, and afraid that some one else should be benefited by it. It would act upon the principles of the old proverb, "As iron sharpeneth iron, so doth the face of a man his friend." Men, generally, are somewhat like coals or firebrands,—"they burn brightest when gathered into heaps."

Let Mr. Gresswell look over the papers read and discussed at such unions as the "British Medical," or the "British Association for the Advancement of Science," and say that they advocate or foster the kind of trades-unionism that he seems to believe obtains among medical men or veterinary surgeons, and which he seems to think the *beau ideal* for the latter, "in order to guard against constant legal actions on the part of the public." Without such, science would be confined to the favoured few—would be in a manner stagnant—as there are few better incentives to pursue it, unless the study of it for its own sake. Notwithstanding the high social position of Mr. Gresswell, as being the worthy son of a worthy sire, and enjoying exceptional opportunities of education and practice, I do not think he has proved his case when he says that "we are throwing away good opportunities of effecting our ends" by discarding the fleam, the lancet, and the blood-stick.

His recorded cases do not bear out his premises. He tells us "they were not by any means common cases, occurring successively, but were carefully selected from five years' experience, and were chosen from many hundreds, to show the practical advantages of bleeding in certain cases." There is some ambiguity about this sentence. If he means that the cases he records as illustrating the beneficial effects of blood-letting are not common ones, in the sense of their pathological peculiarities and complications, I can scarcely agree with him; for I am unable to discover anything uncommon about them, either in their origin, course, or termination. If he means that they were selected from many hundreds of the same kind that he had treated on the same principle, but had not the same results, they prove nothing. If he means that he only bleeds six cases out of many hundreds occurring successively over a period of five years, again I say they prove nothing—at least, nothing to the point; for that is probably about the proportion that venesection is practised by most sensible practitioners. If we except the first case—which I beg to submit was not a case of Pneumonia, and could not therefore be cut short—I do not see, nor can I think that any of the others were benefited by the operation; at any rate, I have seen similar cases recover as soon without it.

But we must turn our attention to some of the pathological conditions he describes, as indicating a necessity for venesection. And first of Plethora. This can scarcely be called a pathological condition; but it evidently plays an important part in Mr. Gresswell's etiology of disease. He says that "the primary cause of disease in plethoric animals is the abnormal quantity o blood existing in the vessels, predisposing it to stagnation, and to take on the peculiar condition of inflammation." Plethora, *per se*, is not regarded by the best authorities as inducing a tendency to inflammatory disorders. Dr. Watson remarks "that the subjects of Plethora are not, as they might naturally be supposed to be, and as many writers state them to be, peculiarly prone to suffer inflammatory complaint." There is general fulness of the vascular system, but no irregularity, nor any necessary tendency to irregularity in the distribution of the blood. In fat animals, which are usually regarded as plethoric—and which, I apprehend, Mr. Gresswell regards as such—the blood is not in abnormal quantity, but is rather below than above the normal standard, and I have often observed that the pulse is singularly small. The diseases of fat animals are more of an apoplectic nature than

inflammatory. We see this exemplified in the overfed entire horse, or in those moving mountains of beef and pork which congregate in our show yards, as well as in our brewers and draymen, who, as a rule, die very suddenly from fatty infiltration of their muscular tissues, especially the heart.

"The possibility of there being at any time an increased quantity of blood in the animal body is denied by some observers. . . The condition is recognised by veterinarians in young fast-thriving animals, when fed upon very highly nutritious food." This condition we find in young animals which have been badly fed and then turned into rich pasture, where the highly nutritious food induces a superabundance of blood, and that too of an imperfect kind, and which the previously weakened vessels are unable to retain,—when, on the slightest disturbance to the balance of the circulation, in the shape of a cold night, or even "gading" in the field, the imperfectly elaborated blood passes through the tenuous vessels, decomposition takes place, and the sufferer dies poisoned by the juices of its own body.

I had a very forcible illustration of this during last summer, in the case of a farmer who bought ten calves at a fair, and put them in a field of rich meadow pasture, along with ten of his own rearing about the same ages—from nine to fifteen months. About a month afterwards he was much surprised and disappointed to find, on going into the field one morning, one of the animals dead, and two unable to get up; and before I reached the spot a fourth was lame and much swollen on the affected limb. I setoned and gave medicine to all of them, but to little purpose, for seven of the ten bought in were dead within two days of the first one being observed, The ten of his own rearing never seemed at all amiss, and continue healthy up to this time. Another fact worth mentioning is, that no such cases ever occurred on the farm before, so long as could be remembered. There are some farms adjoining this one on which they lose a few animals annually in the same way, but later on in the season generally; and, as a rule, those which sufferfrom such diseases are not very regular keepers. Now this is what I consider a dangerous Plethora, leading to, or inducing disease, but not of an inflammatory kind, or that would be benefited by blood-letting; unless, indeed, it were resorted to sufficiently early to increase the fibrine of the blood, which bleeding is known to do. But in these cases the deficiency is too great to be supplied by such means, and the effects are always too apparent before there is time to remedy them.

The "predisposition to stagnation" mentioned by Mr. Gresswell, and so baneful in its effects, is not induced by the quantity, but the defective quality, of the blood, and the weakened condition of the bloodvessels; for the stagnation in those cases always occurs in the muscular parts of the body, where the bloodvessels are surrounded with the least resisting tissue.

But Mr. Gresswell's idea of the cause of inflammation seems to be the spissitude or viscosity of the blood; for he says "that bleeding is of benefit when the system is surcharged with blood, as in Plethora, when that excess of blood undergoes inflammatory change, as in inflammatory fever, and also when the blood has localised itself with an active congestion or inflammation."

It would seem from this that the blood, in Mr. Gresswell's opinion, is something like a living independent tissue, that can localise itself into an active congestion or inflammation of its own accord—in short, can declare war against all the other tissues of the body. Whenever the globules become too numerous, or too fat and lazy—if I may be allowed the expression—they initiate a strike, refuse to move on, or dart through the vessels; and Mr. Gresswell—to make short work with such a refractory lot—turns them out to make way for new ones, which I suppose he expects will behave themselves better. The comparison may be somewhat crude, but, strictly speaking, it is

true to Mr. Gresswell's pathological ideas, which I ventured to say were rather musty; and he still maintains, with an obstinacy that must do him credit, "that inflammatory action is not due to an alteration in the walls of the bloodvessels, *but to changes in the blood itself.*" He has offered us no proof, however, nor attempted to reason on the matter, but contents himself with questioning the facts used in support of the opposite view, because they are derived from experiments on the cold blooded vertebrata; and he is so sanguine that he is right, that he asks me "to reconcile my theory of inflammation in vascular and non-vascular structures." This opens up a rather large subject, and as my time is at present pretty much occupied, and as I presume your space will be, I will, with your consent, reserve my remarks on this and a few more topics for your next.

I am, sir, yours very obediently,
JOHN GERRARD, M.R.C.V.S.

Market Deeping, Lincolnshire.

FELLOWS *v.* MEMBERS.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—Now that members are found coming to the front and submitting themselves to the ordeal of a Fellowship examination, a few temperate remarks on the above subject are, I opine, not out of place. Therefore, without apology, I pen this, with the sincere hope that all I write may be taken as intended—"for the general good of our noble craft."

It is said that, "Even with new men, new names, and new arrangements, the *Alma Mater* still calls up remembrances which makes us eagerly turn to ascertain who now fill its departments and enjoy its honours."

This is most true in our present case, and gratifying indeed it must be to all real lovers of progress to find our departments filled by men of honest worth, so anxious for our common good; yet very sad it is to learn that with all good intentions there are those to be found anxious to controvert such intentions. To this we must submit. That the Fellowship degree is a step in the right direction, every truly conscientious member must admit, but if some become turbulent on the subject, let us leave them to reflection.

Now to my theme,—a few words to those who have passed the ordeal and received the diploma. I think, perhaps, it may be needless to address them; still I venture, and will remind them that the eyes of the public in general are upon them: the inquiries are—What kind of new coin is this just issuing from the veterinary mint?

May I earnestly solicit careful thought on the part of those who have gone forth? Do walk as sober-minded, intelligent, thoughtful, scientific medical men, showing to the public that you are men of sound scientific culture, and GENTLEMEN. For so much does depend upon the deportment of the first issue of new degree men; therefore, let us vie with one another as to whom our College shall claim as her *alumnus*.

A few words to those who may wish to compete for this degree. If as true labourers in our science, and willing to continue such, by all means prepare for the ordeal; but to those who desire to follow the profession as a means whereby to *live only*, or those who have been lazy, *non-readers*, and non-studious—in plain words, with only the "TALENT" they possessed when they embarked in practice—it will be far better to stay where you are than go in for the Fellowship, and have to be in continual progression. And, moreover,

the examination is such that, unless you have continued a student since you left your college, you may rest assured you will fail to attain the coveted degree, and will return home saying truthfully, that the examination caused you

"To often scratch your head in dull despair,
And to the quick your nails bemusing tear."

I am, yours, etc.,
"ARTEMUS SECUNDUS."

CORRIGENDA.

In the list of subscribers to the National Veterinary Benevolent and Mutual Defence Society, at page 32 of the last number of the *Veterinary Journal*, the name of Mr. Sowerby has been misprinted Scruby, Barling as Bailey, and Fryer as Pryer.

TO CORRESPONDENTS.

BETA.—Thanks for the offer. Papers on Botany are out of place in our pages, as students of that science can find all they require in any of the many text-books recently published. The demands on our space are too great to allow of this subject being introduced, to the exclusion of more valuable and specially professional matter.

INQUIRER will observe that we have given the two series of written questions for the Fellowship degree in the present number of the *Journal*.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Professor Müller, Berlin; R. Ward, Woking; A. Liautard, New York; J. H. Kirk, Edinburgh; J. A. Nunn, Royal Artillery; J. D. Allman, London; T. Hopkin, Manchester; S. Locke, Manchester; W. A. Taylor, Manchester; J. Watson, Liverpool; T. Greaves, Manchester; W. H. Coates, London; J. Lambert, 17th Lancers, Leeds; T. E. J. Lloyd, Liverpool; J. Rowe, London; J. Gerrard, Market Deeping; "Nil Desperandum"; "Artemus Secundus."

BOOKS: *C. Müller*, Referat betreffend die Verbreitung der Ansteckenden Thierkrankheiten im II. Quartal, 1877; *W. R. Gowers* and *H. R. O. Sankey*, The Pathological Anatomy of Chorea, The Pathological Anatomy of Hydrophobia; *A. Wynter Blyth*, The Prevention of Rabies in Dogs; *W. Fearnley*, Lectures on the Examination of Horses as to Soundness; *C. H. F. Routh*, On Overwork and Premature Mental Decay; *A. Offenberg*, Beitrag zur Behandhung der Lyssa Humana; *E. Dele*, De la Consommation de la Viande des Bêtes Bovines Tuberculeuses.

JOURNALS: *Wochenschrit für Thierheilkunde und Viehzucht; Archiv. für Wissenschafftliche und Practische Thierheilkunde; Contemporary Review; Archives Véterinaire; Recueil de Médecine Vétérinaire; Lancet; Edinburgh Medical Journal; Journal de Médecine Vétérinaire; Live Stock Journal; North British Agriculturist; The Farmer; Agricultural Gazette; Magnet; Broad Arrow; Journal of the National Agricultural Society of Victoria; Der Thierarzt; Revue Vétérinaire; Medical Press and Circular; Animal World; Practitioner.*

NEWSPAPERS: *Daily Telegraph; Australian Town and Country Journal; Homeward Mail; Manchester Courier; Montreal Herald; Brighton Times; Shrewsbury Chronicle; Yarmouth Independent.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MARCH, 1878.

RABIES CANINA. SALICYLIC ACID IN SUB-ACUTE RHEUMATISM.

BY PROFESSOR WALLEY, EDINBURGH VETERINARY COLLEGE.

Rabies Canina.

Owing to the superlative importance of this subject to man, I think every fact bearing upon Rabies should be recorded. In obedience to this conviction, and following the example of my friend Mr. W. A. Taylor, I beg to forward the following remarks for publication :—

1st. During a period of about eighteen months, I saw, in Manchester and the neighbourhood, more cases of Rabies than in any five years of my professional career. In Scotland no case came under my notice until the year 1876.

2nd. Although—in my experience—the retriever (especially mongrels) is the most treacherous of any breed of dogs, the disease has, with the exception of hounds, come under my notice most frequently in the smaller breeds, as terriers and spaniels.

3rd. As to treatment, I have never attempted to treat the dog.

In the case of one horse—a beautiful half-bred grey cart-gelding, which had been bitten on the coronet of the near fore-foot—I determined upon trying the effects of treatment. The

animal was at the time in a violent state of agitation: perspiration profuse, nostrils dilated, eyes glaring, and mucous membranes injected; rapid movement of ears, neighing wildly, rushing violently with open mouth at the manger, rack and iron stall post, endeavouring to break halter by pulling back and gnawing at it, tearing ferociously at coronet, and dashing himself about regardless of consequences,—these were the prominent and hurriedly-noted symptoms.

Desiring to make a more careful examination, I requested the attendant to turn the animal round in the stall. This he did; but immediately violent symptoms were manifested, there was a general stampede amongst the bipeds, and I was isolated in a small stable with my rabid patient. Keeping him at bay with a pitchfork, I at length succeeded in passing the halter shank round the stall post, and endeavoured to hobble his legs with a rope, and in a short time the animal fell violently on his side.

Seizing the opportune moment, I pressed my knee upon his poll, and succeeded in preventing him rising again. I opened his jugular vein, and administered a draught composed of full doses of tincture of opium and chloroform.

The blood flowed freely, and was florid in colour. The medicine was swallowed with comparative ease; but immediately thereafter (fortunately, perhaps, for me) my patient died.

In another case, I succeeded in securing the animal (a bay cab-horse) to an iron pillar in the centre of an open yard. The symptoms were not quite so well marked as in the first case. I succeeded in withdrawing a tolerably large quantity of blood from the jugular vein (the blood flowing very freely and being very florid), and in administering a strong draught of tincture of opium and chloral hydrate; shortly after which he was destroyed.

4th. I think it is incumbent upon all practitioners who are residing in districts where the disease is prevalent, to provide themselves with a hypodermic syringe, and a supply of such agents as are likely to prove of service in combating this dire and fearful malady. These agents are curare, atropine, conia, chloral hydrate, and morphia.

I need scarcely say that every precaution should be taken to prevent the patient inflicting injury upon any other animal, or upon man. This can be done in the horse by the aid of ropes (a lasso if the animal is in a loose box), and in the dog by a long pair of strong curved blacksmith's pincers, or a lasso if he is at large.

I cannot dismiss this matter without adding a few remarks on the *brutality* sometimes exercised by *men* (?) upon dogs, either as the result of unreasonable or unreasoning fear, or from a desire to see the animal roused to a pitch of desperation, or to fight with one of his canine friends, perchance as harmless and as innocent as himself.

Very recently a large retriever dog was excited to a state of fury in Rose Street, in this city. He was battered about the head with a constable's staff, and finally despatched with a smith's hammer. By request of Dr. Littlejohn, the medical officer of health, I made a *post-mortem* examination of the dog's carcase, about which I found no lesions except such as had been produced by the violence to which the animal had been subjected—the details of which violence were communicated to me by Mr. William Cumming, V.S.

Salicylic Acid in Sub-Acute Rheumatism.

A well-bred brown mare (five years old) suffered from a severe and prolonged attack of Gastro-Colic Indigestion during convalescence. The symptoms of Rheumatism made their appearance in the sheaths of the flexor tendons of the near fore-leg; in a few days translation of the disease to the off fore-leg took place; in other two or three days it was re-translated to the near leg; and in other two days it attacked both stifles. Up to the time of its appearance in the stifles, the mare had been treated with potassii iodid. and potassa bicarb.; but when I found that I was gaining no ground by its use, I decided upon administering salicylic acid.

The acid was given in doses of a dram and a half in combination with soda bicarb. three drams. This was given three times a day in mash, and in three days the rheumatic swellings had

entirely disappeared, the mare rapidly regaining health and condition.

A peculiar effect of the acid was observed after the administration of four or five doses,—the mare becoming very excited on the approach of anybody (even her groom), and shivering violently. These symptoms passed off in a day or two after the medicine was withheld.

CLINICAL NOTES ON CASES OF STRANGULATED HERNIA.

BY J. C. DWYER, M.R.C.S. (LONDON), M.R.C.V.S. ROYAL HORSE ARTILLERY, WOOLWICH.

THE subject of Strangulated Hernia in the horse has already been somewhat exhaustively discussed in the pages of the *Veterinary Journal*, and it is with some diffidence that the subjoined crude notes of two cases treated by the old operation are submitted to your readers.

It would appear that the horse is subject to but *one form* of this affection—*viz.*, *oblique inguinal* (at least, this is the only form which has come under the notice of the writer in seven cases treated by him); and if this be so, there must be less liability to complications arising therefrom than is generally believed, while the operation for reduction can be undertaken with a large balance of chances in favour of its success—always assuming the case to have come to hand in good time.

Of seven cases, two terminated fatally. In both of these valuable time had been lost in having recourse to violent and protracted taxis, as well as to treatment of the most cruel and barbarous description, at the hands of unskilled natives. If the notes of the subjoined two cases possess any special interest, it may be found in their serving to illustrate the two extremes of the *one form* of Hernia above alluded to; the first case being the most acute of the seven, and the second the least so.

CASE NO. I.

Subject.—A grey Arab stallion, the property of Captain C——, 21st Punjāb Native Infantry.

History.—The patient was seized with severe pain whilst on parade at Peshawur, just after the rider (who was adjutant of the regiment) had galloped him a short distance. He was at once sent off the field; and on reaching the stable continued to show signs of abdominal pain; was treated for "Colic"; but becoming worse, a farrier-sergeant of artillery was called; and he, being a man of some experience and more than ordinary capacity, diagnosed the case as one of rupture, and advised the owner to lose no time in procuring, if possible, the services of a veterinary surgeon; and within three hours of the accident the case came under my notice.

Symptoms.—The patient had undergone a great change in his general appearance, attributable to the intense suffering already endured, and was rapidly approaching a state of collapse. The surface of the body was covered with cold sweat, which broke out in patches from time to time, and ran down his flanks and thighs in streams. His countenance bore the marks of extreme suffering and great anxiety, most painful to witness; and the heart's action was so feeble that fears were entertained assistance had arrived too late. The eyeballs were retracted, nostrils dilated, visible membranes approaching a purple hue, and the respirations hurried. He was most uneasy in his movements, not remaining in the same position for many seconds at a time—first going forward, then backing, and finally throwing himself violently to the ground and rolling from side to side, as if endeavouring to balance himself on his back, in which effort he sometimes partially succeeded, and appeared to derive some relief from the posture. A careful examination of the parts failed to discover any difference in the *size* of the two sides. The sheath and scrotum were covered with cold sweat, which dripped constantly to the ground. The left testicle was found immovable, retracted, and of an *icy coldness*, whilst that on the right was not so affected; and, although cold, it did not require a thermometer to enable the operator to appreciate the very marked difference in the temperature of the two sides.

Diagnosis.—Strangulated Hernia on the left side.

Prognosis.—Unfavourable, chiefly owing to the very prostrate condition of the patient.

Treatment.—A stimulant was first given, in the shape of some brandy and water, and a short interval allowed for it to take effect. A favourable moment was then taken advantage of, whilst the patient was lying down, to secure him with the hobbles; and without difficulty he was trussed up in the position for lithotomy. An incision was then made as for castration, the testicle brought out, and the cord cut through. Very little hæmorrhage resulted, showing that the circulation of the part was partially arrested. The index finger was then passed through the opening along the course of the cord, the canal explored, and the hernia reached close to the ring, being about the size and *quite as hard* as a racquet-ball. Before proceeding to its reduction, the surgeon of the regiment happening to be present, and taking a good deal of interest in the case, wished to make an examination of the parts, which was very soon completed. Direct pressure failing to reduce the hernia, a concealed bistoury was passed up under cover of the finger, and a few fibres at the margin of the ring divided; immediately the bowel returned to the abdomen, making a very audible report as it did so.

Sequelæ.—The patient's recovery was rapid and complete. He afterwards became the property of an artillery officer; and although constantly ridden, and exposed to the same exciting causes which produced the affection in the first instance, had no relapse.

Case No. II.

Subject.—A grey Arab stallion, the property of Lieutenant and Adjutant St. J. T——, 11th Hussars.

History.—The patient slipped and fell whilst on parade at Umballa during the rainy season. On being remounted it soon became evident that he had sustained some severe injury; and he was sent off the field and seen by Mr. Gillard, who was in temporary veterinary charge of the regiment, and in consultation with whom the case came to our notice three or four hours after the accident. At some time prior the patient had had a similar attack, which yielded to taxis, and he made a good recovery.

Symptoms.—These need not be given in detail, as they

resemble those described in Case I. in every particular, with the exception of their being very much less acute. There was also a very marked paleness in the groin and scrotum on the left side, and a perceptible difference in the temperature, though less marked than in the preceding case.

Diagnosis.—Strangulated hernia on the left side.

Prognosis.—Favourable.

Treatment.—A stimulant was given, and a short interval allowed to elapse,—when the patient was secured whilst lying on the ground, and placed in the lithotomy position. After a somewhat protracted taxis, and there being no signs of the rupture yielding, the operation for reduction was proposed. At first the owner somewhat demurred, being most anxious to preserve the patient's entirety, and more especially so as the horse was a valuable one, and had actually been sold for stud purposes, though not yet handed over to the vendee. The testicles on both sides were unusually large, and no doubt by their weight served to keep the inguinal ring in a persistent state of dilatation; and on this account, as well as that of the patient having previously suffered from a similar attack, it was thought desirable they should be removed. Eventually the owner consented to allow the operation to be proceeded with, on the understanding that the testicles should not be unnecessarily interfered with, and under the conviction that certain death awaited the patient unless speedy relief was afforded. Great care was taken in making the incision through the coats of the scrotum, the serous one being divided upon a director. The opening being sufficiently large, the testicle was taken out and laid aside, the spermatic cord being left intact, whilst the cavity was explored and the imprisoned bowel brought into view. In seeking to reach the seat of stricture slight traction was made upon the cord, and the intestine glided slowly, and without further assistance, into the abdomen. The inguinal ring being found clear, the testicle was returned to the scrotum, and the wound closed with interrupted sutures; it healed within a fortnight.

Sequelæ.—After the healing of the wound the patient suffered from hydrocele, and at one time it was thought desirable to deal with it by puncture; eventually it yielded to topical

remedies, and within two months the parts had quite regained their normal size, and no traces of the operation remained.

TYPHOID FEVER IN THE HORSE.

BY L. BUTTERS, M.R.C.V.S., NORWICH.

AS I have noticed several statements lately as to the existence or non-existence of the above-named affection in the horse, and particularly a very decided opinion as to the impossibility of such a malady, in a recent libellous article in *Baily's Sporting Magazine* for October last, called forth in consequence of a report of Messrs. Mavor and Field as to the nature of a disease which proved fatal to several racehorses at Newmarket, in which the writer said he had searched in vain amongst veterinary authors for an account of the disease,—and having also made the same search, especially in the recent elaborate works of Professor Williams, in which I was disappointed to find no mention of it,—I am led to make the following remarks respecting a complaint which has often come under my notice, in the hope that I may elicit something from your numerous contributors, to enlighten me further upon the subject. The disease I am about to describe I first observed in Liverpool, while assisting Mr. T. Simpson, M.R.C.V.S., of that town; and principally, if not entirely, amongst the draught-horses there. It commenced in the autumn, continued a little under six months, seemed to spread very rapidly by the medium of infection, and proved exceedingly fatal to a large per-centage of the animals attacked by it. The symptoms of the affection were as follows: The animals were suddenly attacked, the premonitory symptom being usually a shivering fit; loss of appetite—in fact, entire loathing of food—with great thirst; respiration slightly accelerated, but not always so at first; internal temperature high, and external surface of the body also hot; pulse very quick and weak, rapidly rising to 80 or 90; mucous membranes highly injected; eyelids swollen and half-closed; mouth and tongue clammy, the latter organ furred; grinding of teeth; the animal very much depressed, and standing "all of a piece."

As the disease progressed the bowels became relaxed, the fæces being very thin, dark-coloured, about the consistency of, and resembling, thin paste, and emitting an offensive odour. On introducing the hand into the rectum, it would either be found filled with this fluid, or else, if empty, would be in a dry state —the internal surface of the membrane being covered with a lymphy deposit, which would stick to the hand and arm. As the disease proceeded, the tongue would become thickly furred, and on its lateral parts, and also on the buccal membrane around the gums, it would present an excoriated appearance, the mouth having a foul smell. There would also be a discharge, often of a purulent nature, from the eyelids, with dull abdominal pain—manifested by the animal constantly pawing with the fore-feet, usually in one particular corner of the loose box, but never lying down. I have seen horses, for days previous to death, constantly scraping at one place, often wearing away the bricks at that part. Towards the fatal termination of the disease, which in the majority of cases was about ten or fourteen days after being first attacked, the patient would present a very haggard countenance, the pulse becoming very quick and often imperceptible at the jaw, and accompanied with a sort of metallic beat of the heart. I noticed that there was little chance of recovery if there was any chronic disease of any organ of the body, especially the liver, which was commonly enlarged in draught-horses, in consequence of the rich feeding practised in the town. On making a *post-mortem* examination, the lungs would, with the exception of being congested, exhibit little evidence of disease; the liver would be also congested, but on examining the stomach and intestines, throughout their whole course would be found congested patches, and in most cases extensive ulceration, the ulcers usually penetrating the mucous coat, and their margin, curling up, would give the membrane a thickened appearance. These ulcers were of a dirty-grey colour, and were found in large numbers throughout the whole course of the intestines. I have also found them on the villous portion of the stomach; but that oftener presented the appearance of one or two large congested patches of a light rose colour. The intestinal canal contained a quantity of the fluid fæces, and in some places the

membrane was considerably thickened. I have recently been called in to treat two cases in Norwich, both the patients being light horses: one last year, a brewer's traveller's horse, which died—the symptoms and *post-mortem* appearances being as I have described; the other, a brougham horse, I paid the last visit to this morning (6th February), the animal being, I am glad to say, convalescent.

While briefly alluding to the treatment of the disease, I will take the opportunity of offering a few remarks on the theories of certain writers and others, as to the action of particular drugs in this and other complaints of a febrile nature. It is maintained by them that by the exhibition of agents of a sedative nature—such as aconite, belladonna, etc.—you will reduce the temperature, diminish the frequency of the pulse, etc., etc.; entirely ignoring the cause of the malady, and treating symptoms. I believe that such affections have a certain course to run; and Sir Thos. Watson, in his "Principles and Practice of Physic," says very truly, that he entirely agrees with the medical man he quotes, who, on being asked what he thought of a certain treatise on Fevers, replied, "I do not like Fever curers; you may guide a Fever, but you cannot cure it. What would you think of a pilot who attempted to quell a storm?" In a disease such as I have attempted to describe, and many others of a like debilitating nature, I am convinced that such treatment is not scientific, but is very reprehensible, and about as effectual in hastening the death of the animal as the poleaxe. The mode of treatment I would pursue, would be first to attend to the comfort of the patient, placing him in a good, roomy, well-ventilated loose-box, giving him pure water, keeping the body at an equable temperature, trying him with small quantities of easily-digested food, and offering demulcent drinks—such as oatmeal, gruel, linseed tea, etc.; and if any medicinal agents are to be employed, there can be no objection to the salts of potash—the nitrate or sulphate; and as the disease advances, and the animal becomes weak, eggs beaten up with good beer and wine, spts. æth. nit., tinct. gentian, tinct. cardam. co., administered, especially if this does not distress the patient too much. When convalescence is setting in, then vegetable tonics,

quinine, etc., may be given; but care must be taken to avoid anything of an irritating nature. This seems to me the only rational mode of treatment, and will generally conduce to the favourable termination of the disease.

[At least since the commencement of the present half-century, the existence of Typhoid Fever has been recognised by Continental veterinarians; and it is described in all the more *recent writings* of foreign authorities.—Ed. *V. J.*]

CLINICAL NOTES ON OPEN JOINTS AND BURSÆ.

BY J. CAMMACK, M.R.C.V.S., ECCLESHALL, STAFFORDSHIRE.

In a recent number of the *Veterinary Journal*, there was a record of a case of Open Hock-Joint, and its successful treatment through occlusion of the opening by means of gum shellac. The appearance of that paper has induced me to forward the following notes for insertion in the *Journal*.

Case I.

November 28th, 1874.—A half-bred two-year-old filly. The bursa of the *flexor pedis perforans* of the near hind-leg was discharging synovia from the inner aspect of the limb. The attendants observed that two hours previously she had been all right. Treatment was limited to the application of cold water to the outer side of the hock for some hours.

29th.—Injected into the bursa a solution of carbolic acid in glycerine and distilled water, and continued the irrigation of the outside of the limb with cold water.

30th.—The discharge of synovia had ceased in twelve hours after the injection of the acid. Applied over the wound, by means of a plaster, a piece of cotton wool dipped in a solution of perchloride of mercury, of the strength of one grain to the ounce of rectified spirits of wine, and had the limb frequently douched with cold water.

December 1st.—Discharge of synovia was entirely arrested, and there was less pain. The pledget of cotton wool was replaced by a piece of lint dipped into a saturated spirituous

solution of shellac at noon. On seeing her again in the evening, found that she had just risen to her feet, and was in considerable pain,—it was thought in consequence of having hurt the limb in rising. She bore no weight on it, and was "blowing."

2nd.—Received a message to the effect that the animal was worse. Found there was great pain, patient lying and rising at intervals, "blowing"; pulsations numbered 70 per minute, and were of a wiry character; respirations were accelerated, and flank tucked up. It was evident that suppuration was going on, and had been on my last visit, but was overlooked. Removed the shellac plaster, having previously saturated it with gin, at the moment the readiest and most accessible solvent of shellac. To its centre adhered a cone-shaped mass of cream-like pus. The whole of the hock by this time had become much swollen. Applied to its inner and outer aspects a strong cantharidine blister.

3rd.—There was a discharge of pus from the wound. Fever had not abated.

4th.—By this date the mare began to lie for hours at full length, groaning and grating her teeth. Pulse was small, wiry, and numbered 90 to the minute.

6th.—Wound and its discharges had become very fœtid.

7th.—There was now an irregular and ragged opening immediately behind the internal malleolus of the tibia into the true hock-joint, from which flowed a blood-stained stream of pus and synovia, emitting a powerful stench. In a few days from this time the owner consented to have her destroyed.

Case II.

December 18th, 1874.—White cart-horse, aged. Found a discharge of synovia from the same bursa as in the preceding case, but from the external aspect of the hock. The animal had been kicked two days before; sympathetic fever was only trifling, though not much weight was borne on the lame limb. Removed the hair from the neighbourhood of the wound, and applied to it a piece of carbolised lard; then the inner side of the hock was douched with cold water for ten minutes, and this was repeated several times during the day.

19th.—This treatment was persevered with until the 25th, when the discharge not having altered, and the pain and stiffness of the limb having increased, there was injected into the bursa, from an ounce glass syringe, a teaspoonful of the following mixture:

Acid Carbol. (crystal) . . .	1 part,
Glycerine (Price's)	2 parts,
Distilled water	2 parts.

26th.—The discharge had decreased, and the owner had undertaken to repeat the injection. Granulations protruded from the lips of the wound.

27th.—There was no discharge; pain was not so great. Being doubtful whether pus, if present, could get a direct exit from the wound, a metallic probe was forced through the granulations into the cavity of the bursa; its withdrawal gave no evidence of the presence of either pus or other fluid. There was hæmorrhage from the granulations, which was not interfered with.

29th.—Owner had had the horse taken for a short walk before my visit. I found him very lame and stiff, but the wound was not discharging. Treatment of the "proud flesh" being insisted on, a very weak astringent lotion was used. The owner refusing to have the hock blistered, nothing more was done. He was from this date allowed the luxury of lying down, which had hitherto been denied him. I saw him at work a fortnight afterwards, lame and stiff. Eventually he became sound.

Case III.

August, 1876.—A grey cart-mare. Had been lame a fortnight. The hock was much swollen, and there was a small opening into the joint from which flowed oil-like pus and synovia. The animal was at grass, and when grazing stood with the foot of the lame limb suspended in the air. It was stated she had received a kick on the outside of the limb, and for a few days afterwards was worked, being fairly sound, but soon became worse and lost condition rapidly. Then there was observed this small wound; and it was supposed that, having "broken," the injured part was so much the better. The outside of the hock was blistered, and the solution of carbolic acid as above was injected into the joint. Using

the acid again in three days' time, the discharge was completely arrested, and a smart cantharidine blister was applied. The owner having neglected to provide the mare with a loose box, it was explained to him that it was to his interest to place her in slings or to destroy her. He said he would do the former. On visiting her a week afterwards, I found her enjoying the unrestricted liberty of a pasture of some acres. The wound had healed, but the pain was most intense; the hock was swollen and very tense, especially on the inner side. The mare being valueless, the owner promising to destroy her in a few days if not better, together with the probability of suppuration continuing within the joint (which idea was supported both by the local and general symptoms), two drachms of the above solution, containing twenty-five grains of carbolic acid, was injected into the bursa, the seat of thoroughpin on the inside of the hock, by means of a subcutaneous injection syringe. Ten days afterwards the mare was said to be better, both as regarded lameness and general health; but it was stated that the owner considered that, with half a peck of oats a day, the mare was as well ranging over the fields as in a loose box. This announcement was accompanied by a request to call and see her when in the neighbourhood. The call was made about four months after the injury had been received. She had improved in condition, and the constitutional symptoms had disappeared. On being made to move briskly, she put the heel down, but imperfectly flexed the hock, which was greatly swollen. It was evident that anchylosis of the true hock-joint was taking place; and it appeared that the metatarsals, the tibia, and the intervening bones would soon become united by ossification of intervening exudate. Atrophy of the muscles of the thigh and quarter was well marked. It being now late in November, the warmth and shelter of a loose box were again enjoined. In January of the present year, about six months after the accident, it seems the animal was found dead in a ditch into which she had fallen, and had not been able to extricate herself.

Case IV.

Subject, an eight-year-old posting-mare, the property of the proprietor of the White Hart Hotel, Lincoln. On the

morning of the 11th June, 1877, she was found in the field very lame, and with a wound on the inner side of the off hock. However, she was not so lame as to prevent her being harnessed to a 'bus and driven a distance of three miles. I was called to her about an hour after the accomplishment of this task, and found her so lame as to be with difficulty removed from one stable to another. The hock was swollen and hot, and there was a considerable amount of fever; the wound, about a third of an inch in length, was on that part of the hock-joint which is destitute of a bony protection; from it there issued a small stream of serous fluid. By this time, being acutely sensible of the necessity of meeting and combating suppuration and putrefaction in cases of contusions or punctures near a joint, it was determined that a strictly antiseptic course of treatment be instituted and kept up. To this end a bundle of tow was steeped in a solution of carbolic acid, and while the surface of the vicinity of the wound was played on by a syringeful of the solution, the tow was fixed over the injury by a square sheet of lint, kept in position by shellac dabbed on its upper and lateral borders, but, for the sake of drainage, adherent below only at the corners. The mare was then put in slings. The outer side of the hock was syringed for a quarter of every hour with cold water, while the tow on the wound was kept saturated with the antiseptic solution, for the purpose of disinfecting the air near the wound, preventing putrefaction of the discharges from it, and sloughing of the skin and deeper tissues covering the joint. This treatment, with slight febrifuges, was continued until the end of the fourth day, when the discharge had assumed a thick and unmistakable appearance, and the constitutional symptoms had become serious. The tow covering the wound was removed, the shellac having been dissolved by soaking the lint with gin. The wound presented the usual appearance of open joint. It was large enough to have admitted the end of a goose-quill. From it flowed what I considered was a mixture of pus and synovia; but the termination of the case was so favourable, that I doubt the presence of the latter. I injected into the wound, twice during the day, the mixture containing carbolic acid in the proportion of one-fifth. From the irritability of the mare, it was impossible to guess at

the quantity that got into the wound; for though the nose of the syringe was placed well within its lips, most of it was at once returned. Next day brought no improvement, either in the general or local symptoms; the discharge was as abundant as before,—from which I considered that, owing to the thickened state of the tissues, the antiseptic had not been brought into contact with all parts of the seat of suppuration: therefore a larger syringe—a 2-oz. size—was used, and the cavity injected as nearly to hyper-distention as circumstances permitted. This was repeated the following day, as there appeared no effect from past treatment. Next day, the seventh after the accident, and the fourth after the first application of the acid to the interior of the wound, the discharge had ceased. Granulations, which on the previous day had been noticed, were now of such prominence as to raise the cry among the attendants of "proud flesh." The treatment of this phenomenon was pressed. And it was treated. On the twelfth day she was removed from the slings for a quarter of an hour's exercise, and this daily,—not being allowed to lie down for about three weeks, by which time she had become "big" in her general appearance. The hock was still much swollen, but lameness was not severe. She was prepared for, and gradually put to, regular work, where she has since remained. At present (January, 1878) the only evidence of her narrow escape is a prominent enlargement on the site of the wound, of the size of an acorn.

In this case, what would have been the effect of a shellac or other plaster? If it had been applied before the mare was put to her three miles of fast work, it might have prevented further mischief, even had the capsular ligament been punctured. Had it been after the performance of the journey, can we doubt its result? The fact of the discharge by the fourth day having been plentiful enough to soak through a large pad of lint, etc., and run down the length of the leg, demonstrates the danger of a plaster, the use of which is most unsurgical unless we are certain that suppuration has not commenced, and will not begin after its application. Of this latter possibility we can have no foreknowledge, and over it but little control beneath a plaster,—which will not only stop the discharge of synovia and

exclude the air, but may imprison bruised and dead tissues, often saturated with a germ-laden atmosphere.

In conclusion, it remains to be pointed out that the use of carbolic acid in these lesions has been recorded by Mr. Hadfield, M.R.C.V.S., of Rochdale, in the *Veterinarian* or this journal.

A SINGULAR CASE OF DELIRIUM IN A COW.

BY C. H. HURRELL, M.R.C.V.S., SOUTHMINSTER.

In perusing the pages of your journal for January, I find recorded by Mr. Hill, of Wolverhampton, "A Singular Case of Delirium in the Horse"; and as, after his interesting description, he mentions that he has "never observed the same appearances in any other animal," I thought a few observations from any one who had might not prove inopportune. Should it be considered worthy a place in the *Journal*, I will briefly describe a similar case of a cow, which came under my notice some time since.

We were called upon to attend a young cow, the property of T. D. F. Tatham, Esq., of Althorne, a village about three miles from here. She calved in the morning, and was left by the stockman doing well. On his return, in two or three hours, he saw unmistakable signs of approaching illness, she having become unsteady in her walk, and a wild, vacant stare having settled on her countenance. On our first visit, it was with great difficulty she could be moved from the yard to a convenient shed. The cerebral disturbance was so rapid that she soon fell, and then the usual symptoms of "milk fever" set in, and gradually increased to their most aggravated form. She was treated with aperients, stimulants, enemas, by counter-irritation, etc.,—all of which were repeated frequently for about six hours, but without producing any abatement of the symptoms. On our second visit, at night, she was evidently worse, and all efforts to keep her in a good position were fruitless. She lay on her side, breathing heavily, and her four legs continually moving as in walking; after some little time the action increased to

trotting, and finally to galloping, which continued with but very few short intervals for nearly an hour—sometimes increasing to incredible velocity. This appeared to have the effect of producing complete exhaustion, over which we had no control; and after one of the violent paroxysms of excitement, she gradually sank, and death speedily terminated her existence.

ON SOME OF THE SKIN DISEASES OF THE DOG THAT ARE COMMONLY KNOWN AS "MANGE."

BY J. A. NUNN, M.R.C.V.S., ROYAL ARTILLERY.

(*Continued from page* 95.)

Symptoms and Diagnosis.—The first symptoms are itchiness and uneasiness of the dog, followed by the formation of minute pimples, resembling flea-bites, for which they are often mistaken. These two first stages are not often seen in practice, as they are usually not noticed—the first stage especially so. The second stage is very liable to be mistaken for the *Eczema rubrum,* which is a non-parasitic disease. The red points are chiefly seen under the abdomen, and inside the thighs, where the skin is thinly covered with hair. These pimples give rise to itching, indicated by the constant scratching, and a sudden uneasiness that is shown when feeding or drinking. This last symptom is nearly diagnostic. In consequence of this itching, the dog will inflict injuries on himself by his teeth and claws, which to some extent will complicate the diagnosis. There is also a very rapid loss of hair, chiefly on the back, ears, and neck. The red points next form vesicles that burst spontaneously, or else are ruptured either by the dog himself or by collision with some object; the exudation drying and forming crusts that sometimes attain a very great thickness. There is also usually a peculiar mass of bran-like scales or scurf that grows over the upper eyelids. In old cases the skin becomes very dry, and what little hair is left hangs matted together in a tangled mass. The rapid spread of the red points is caused by the parasites being conveyed on

the claws in scratching, or else in the bedding, to different parts of the body. All these symptoms, however, can only be looked upon in the light of aids to the diagnosis, as they cannot be relied upon with certainty,—our sheet-anchor in determining the presence of this disease being the microscope. It may at first be thought to be an easy task to procure a specimen of acari from dogs; but my experience in the matter is to the contrary, having had on more than one occasion to make several scrapings before an individual could be obtained. This is more particularly the case in cold weather, or if the dog has been newly washed. Gerlach says, "The finding of these insects has as yet been attended with great difficulty; in man, however, it is easily done by following the little grooves on fresh papillæ, and especially in the larger tracks, at the blind end of which there may or may not be nodules or vesicles. It has not been possible heretofore for veterinary surgeons to discover these parasites with certainty, because the various insects and their chief characters have not been known, and they have not been regarded as the ontological cause of Scabies." The various procedures to find the acari are as follows:—

(1) Animals are placed in the sun and carefully examined: the acari do not get on the surface of the epidermic scales, and on the hairs, as dermatodectes do, and these latter can be seen with the naked eye.

(2) The sarcoptes are found below the scabs or scales, which may be so adherent to the skin that on being removed it bleeds. The dermatodectes are observed, after the animals have been exposed to the sun, on the outer part of these scabs, but the sarcoptes are only seen on the inner. The scabs examined should always be fresh, and they may be laid on black paper in a warm place in the sun, and then examined by a hand-glass, embracing a wide field of vision. The small sarcoptes are only discovered when the cuticle has been removed with the scab.

(3) The sarcoptes are most easily and certainly found when the scabs are laid with their under surface uppermost on the arm. In the course of about twelve hours they pass from the scales to the arm, and burrow into the skin at the part covered by the scab. On removing the latter, the parasite is seen as a minute

white spot on a somewhat reddened skin, or on a small red papule. With the point of a needle the white summit of the epidermic vesicle is to be punctured, and the sarcoptes can then be obtained. If the inflammatory nodule be allowed to pass to the state of a vesicle, then the mite is rarely found. If there are only a few acari on the scales applied to the arm, the red points or nodules are only seen next day, and before the appearance of this eruption the insects are not, as a rule, to be found on the skin ; if, however, many of the parasites exist on the scales, then in the course of a few hours they may be obtained on the arm. The dermatodectes, especially of cattle and horses, are very readily found in a similar way. Sometimes the scabs need only be on the human skin one hour.

The symbiotes are not discovered by this procedure, but they are readily obtained from beneath the scabs by laying the latter on paper in the sun, where next day they are found in small clusters. When the sarcoptes are sought by placing scabs on the skin of the arm, lest any should have remained behind, the skin should be rubbed with a little oil of turpentine.

With the other forms of parasites mentioned, this precaution is unnecessary. When the sarcoptis has been discovered by means of a lens, it should be placed on a slide in a drop of oil. The preparation should be first placed under an inch objective, and search made for the parasite ; afterwards, it may be viewed under a higher power.

Treatment.—Begin by washing the dog with soft soap and warm water, scrubbing him with a soft brush, and if any accumulations of scales remain, break them down with the finger nail ; this washing must be performed thoroughly, so as to soften the skin, remove any dried and clotted discharge, and to get rid of as many crusts under which the acari lurk as possible ; also to allow of a better action on the skin of the medicament employed. The dressings that are in use are very numerous, and generally practitioners are partial to one of their own. But in making use of any one of them, the kind of dog must be taken into consideration. If the case is of long standing, it will be of great service to shave the hair off (particularly if a long-coated dog), if a sufficiently smooth surface for the action of the razor can be

obtained, which is not often the case, but if not, a large quantity can be removed by clipping. The dressing most commonly used is sulphur ointment, and in general it is quite sufficient, provided the whole of the affected parts are dressed, so that none of the acari escape. It may be rendered more effectual by the addition of caustic potash or soda, which will break down the thick incrustations, and allow the sulphur a wider sphere of action. Sulphur ointment has the advantage of being perfectly harmless, and the small quantity that the dog might lick off himself would not hurt him, which is a great consideration; for no matter how carefully the animal may be tied up or muzzled, he is almost certain to get a small quantity into his mouth. McDougal's glycerine sheep-dip has been recommended; it is certainly a good application for sheep, the active principle being carbolic acid, and the mixture being fixed to the coat by the size contained in it; but of its value in the case of the dog, I have not had sufficient experience to speak with any degree of certainty. If it is used, it should be borne in mind that on some animals it has a peculiar and very fatal toxic effect, producing death if not very quickly removed. Gerlach considers creosote the best agent for animals with short hair, and a decoction of tobacco for those with woolly coats. The great objection, however, to creosote is that of its odour, its liability to turn the hair of a dingy yellow colour, and to give it a harsh texture, particularly so in white terriers. It should be used diluted with twenty-five to thirty parts of oil. Professor Gamgee gives the following formulæ: Creosote 1½ parts, spt. vini rect. 15 parts, water 11 to 14 parts. This lotion to be applied twice or thrice, with intervals of a day or two. The decoction of tobacco is made by pouring 25 or 30 parts of hot water over one of the leaf; in this a dog can be immersed for from five to ten minutes without any injury; but a stronger decoction of from 1 part to 5 or 10 will poison many domestic animals, especially the ox. This preparation is greatly to be recommended, on account of its cheapness and the ease with which it is prepared; it is best applied warm. Petroleum and spirit of tar have been advocated; they are cheap and easily obtained, but are objectionable on account of the smell. Staves-acre seeds make a very good application for pet house-dogs, as

they do not smell or discolour the hair ; they should be digested in olive oil at a temperature of 100° Fahr., in the proportion of 1 to 8 parts. Various preparations of mercury are in use, the most common being the blue mercurial ointment or common "blue butter," and the green iodide of mercury ointment. Both these agents require to be used cautiously, on account of the great danger of their being absorbed, and producing salivation. They are only fit to be used when a small portion of the skin is affected ; then the ointment is to be carefully rubbed in all round and over the bare spots. In addition to these topical remedies, such systemic ones are to be employed as the exigencies of the case may require. It is highly probable that the irritation will prevent the dog feeding, and reduce him in time to a skeleton ; then tonics are indicated. I have found, for dogs in a debilitated condition, the liquor arsenicalis in 5-drop doses three times a day produce good effects, besides acting as an alterative. Sulphate of quinine, in 3 to 5-grain doses in a little dry sherry, is an excellent tonic for small dogs. With these alteratives it may sometimes be necessary to give a laxative, especially in those cases where there is no loss of appetite; it will also serve the purpose of clearing the blood from effete materials, and allaying any febrile symptoms that may be present. With this object, one of the purgative pills before mentioned, or a dose of castor oil, may be given—the animal generally lapping up this latter agent in a little warm milk. Exercise must not be forgotten ; but of course, considering the highly contagious nature of the disease, the conditions surrounding the patient must determine the nature of this. It has been recommended by some writers to bed the dog on pine sawdust, on account of the beneficial results of the turpentine contained in it. The drawback to this is the tendency the sawdust has of sticking to any sore that may be upon the body, getting into the coat, and its liability to cake into a hard mass by any moisture that may happen to come in contact with it. All the advantages from the turpentine, and none of these disadvantages, may be obtained by using red pine shavings instead of sawdust; they are easily procured, and are cheap. The material employed for bedding, however, no matter what it is, should be changed at least twice a week, and the old bedding

burned. All kennels, etc., that diseased dogs have been in contact with, should be washed with lime in which carbolic acid has been mixed, in the proportion of a pint of the common brown acid to a bucketful of the wash; and no kennel should be inhabited for at least three weeks, if not longer.

The next form of "Mange" that I propose to consider is also of parasitic origin; this is the "Follicular" or "Pustular Mange," so called in contradistinction to the Scabies or Scurfy Mange. It is caused by the presence of a parasite, the *acarus* or *demodex folliculorum*, in the hair follicles and sebaceous glands. The existence of the acarus has long been known, but it is only within late years that it has been associated with any disease. Indeed, in the first edition of Professor Williams' work on veterinary surgery, it is stated that it does no harm, and in any other work published prior to this, that I have come across, no mention is made of the subject. Erasmus Wilson states that the parasite is the same species that inhabits the sebaceous glands in the human species, in whom, he asserts, it is rather difficult (with the exception of young children) to find an individual that is not infected with these creatures. Of the truth of this statement, however unpleasant, there can be no doubt; and the singular fact that in the human subject the creature produces little or no ill effects, whereas in its canine host it causes one of the most troublesome and obstinate diseases that the veterinarian has to deal with, can, to a certain extent, be explained by the body of one being covered with hair while in the other it is absent. A further proof that the two parasites are the same, is afforded by the experiment of transplanting the acarus from the human subject to the skin of the dog; this was done by Gruby, and in this instance the disease broke out and spread, the dog living for nearly two years. The *acarus folliculorum* possesses a head, thorax, abdomen, eight legs, and a long pointed tail; it measures from $\frac{1}{64}$th to $\frac{1}{135}$th of an inch long, and from $\frac{1}{55}$th to $\frac{1}{555}$th of an inch broad. The thorax is composed of four segments, on each side of which is one leg. The mouth is at the lower part of the head, and is in connection with an alimentary canal of considerable length. The head is somewhat conical, flattened at the top, with two lateral antennæ and a central proboscis, that are movable at will backwards and

forwards. The legs have three joints, with hooks at the ends. These parasites are frequently found in great numbers in the sebaceous glands and hair follicles—instances being recorded of thirty having been discovered in the contents of a single pustule. They are always found with their heads towards the bottom of the sac, and when in great numbers, they are packed back to back, with their feet towards the walls of the ducts. The acari are sometimes seen moving about, though very seldom, and then at a very slow pace only.

Symptoms and Diagnosis.—This form of Mange, although the existence of the parasite was well known, was considered to be incurable until a short time ago. Indeed, Mr. Fleming, in his work on "Veterinary Sanitary Science and Police," describes it as such. The reason for this was that the acarus was lodged so deep in the follicle that the remedies applied, although some were killed, failed to reach all; and though the animal apparently recovered to a certain extent, in a month or two he was as bad as ever. The symptoms in the first stage are rarely noticed; but if they are, it is perceived that there is at first a slight irritation, manifested by the animal scratching; then on one or two circumscribed spots the hair falls off, and the skin becomes reddened; this is especially the case with white short-haired dogs. The patch may not be entirely denuded of hair, a few hairs being sometimes left in the middle; but these are ragged and harsh in appearance, and can easily be pulled out by the root. Upon these bare patches, small red pimples form, that turn into pustules. These pustules eventually burst and run together, forming an indolent foul ulcer, with a flaw of thick fœtid pus, and sometimes even blood. The skin is red, inflamed, and hard, with a peculiar corrugation of the looser portions, and gives off a most disagreeable odour. The patches spread most rapidly, running into one another, and appearing on parts of the body that are easily accessible to the claws, etc. There is great falling off in condition—the animal being reduced to skin and bones; but the appetite is not impaired,—in fact, the dog is generally ravenous for food.

Diagnosis.—Although the above-mentioned symptoms may be of some assistance in determining the nature of the disease, still

a positive diagnosis can only be made by the aid of the microscope. In the first stage, from the inflamed condition of the skin, and more particularly so in a white smooth-haired dog, it may be mistaken for a case of *Eczema rubrum*, or "Red Mange"; and this is still more likely to happen from the extreme difficulty in obtaining a specimen of the parasite in this stage. The round patches and loss of hair must also not be mistaken for some of the forms of Tinea or "Ringworm." When the pustules have burst and crusts form, there is sometimes a resemblance to Scabies; but the difference can be distinguished by the formation of pustules, and the dog showing more pain than irritation, and shaking himself instead of scratching. For microscopic examination, one of the pustules should be punctured, and its contents squeezed out between the forefinger and thumb-nail, and then transferred to a glass slide in a drop of oil. I have found it better not to breathe on the covering glass before applying it, as the condensed moisture will only tend to increase the number of air-bubbles that may be present. The preparation should first be examined under an inch objective; and when the parasites have been discovered, an individual can be examined by the higher power. In the first observation, they will look like small fish with a dark outline; but with a quarter-inch glass, their distinguishing character can be very well made out. After having been preserved some time, the parasite becomes very transparent; and if its precise locality in the preparation is not marked, it will be very difficult to discover it at any future observation.

Treatment.—For a long time, although the presence of the parasite was well known, both in this country and on the Continent, it was almost inaccessible to the Mange dressings then in ordinary use, and the disease was, in consequence, considered incurable. In fact, Mr. Fleming, in his work on "Veterinary Sanitary Science and Police" before-mentioned, says: "With regard to the treatment of Follicular Scabies, the situation of the dermodex renders it almost inaccessible to parasiticidal remedies; the disease it engenders is therefore looked upon as extremely troublesome, and in the majority of cases almost beyond a cure. Often when it is believed to be extinguished, it

reappears in all its virulency in one or two months. Nevertheless, Zürn asserts that he has frequently succeeded with an ointment composed of one part of benzoin to four of lard. Weiss recommends the inunction of essence of juniper. Zundel states that the balsam of Peru has often yielded good results, when the malady was not of too long duration; he having employed it dissolved in alcohol—one part to thirty. He has also used the green ointment of mercury with success, as well as the nitrate of silver ointment. Hofer speaks highly of an ointment composed of carbolic acid; and Vogel prescribes a solution of caustic potash." Thus the disease defied the action of all these remedies, although the two last mentioned seem to have been the best. The first account of any cure that I am able to find, is in the *Veterinary Journal* for September, 1875, in an article published by Mr. W. Hunting. He says that, having treated several cases unsuccessfully, he consulted Mr. Duguid, of the Brown Institution, and they worked together, treating several cases with preparations of mercury, sulphur, iodine, carbolic acid, etc., without success. It then occurred to them that, as the parasites were so deeply seated, the epidermis must be softened sufficiently to allow the agent to reach them. A mixture of creosote, solution of caustic potash, and oil was then tried; and, in Mr. Hunting's own words, "its action was soon most marked." Carbolic acid, with the oil and liquor potassæ, was not so effectual as the creosote. The whole of the body should be shaved, if possible, as the absence of hair gives greater scope for the action of the lotion, and seems also to be injurious to the parasites. The following is the formula: 'Creosote, ʒiv.; olive oil, ʒvij.; liquor potassæ, ʒj.; mix the creosote and oil first, then add the liquor potassæ. Dress the affected spots about twice a week, and allow longer intervals as the skin becomes soft and tender. I have only used the above a few times, as unfortunately a cure will take from two to three months, and even longer, before the hair grows again, and the owners being informed of the fact, generally prefer to have their animals destroyed. But in the few cases that I myself have treated, the lotion has been a complete success, and I have known other cases that have been treated in a like manner in which a cure

was completed. The disease is contagious, though not so much so as Scabies; but still it is not advisable to put dogs into an infected kennel until it has been left empty for some considerable time, and washed down with boiling water and carbolic acid. Boiling water should also be plentifully thrown over the floor and on the benches, and the whole should be whitewashed over, some carbolic acid being mixed in the wash. The bedding should be frequently changed, and the old burned—fine shavings being the best material. The general comfort of the animal should be attended to; the appetite being very great, the food should be nourishing and easily digested; a dose of laxative medicine may sometimes be necessary. It is hardly necessary to state that the patient should be kept from other dogs; and although exercise is necessary, this can be given in hand.

The third and last form of "Mange" that I shall allude to, is that known as *Eczema rubrum*, or "Red Mange." This belongs to the non-parasitic class of diseases, and is consequently non-contagious. Eczema is the effect of some irritant that is applied to the animal either externally or internally, and it is characterised by a number of small vesicles on the skin, usually crowded close together. This stage, however, is seldom seen in practice, there usually being a sore, caused by the scratching of the dog. This sore is usually very sluggish in healing; a thick exudation runs from it, and mats the hair in the neighbourhood. This is especially the case in a part of the body that has extensive motion, or on the elbow, where the sore would be very much aggravated. In the human subject, Eczema begins with a sense of stiffness, heat, and itching; and from the motions of the dog, it is but fair to presume that he suffers in the same manner. These symptoms are followed by a reddened appearance of the skin, which is rough to the touch. This stage of the disease is likely to be mistaken for an Erythema; but it is not so, for if a fold of the skin be pinched up between the thumb and forefinger, and then examined by a lens held up to the light, the apparent roughness will be found due to the presence of a number of minute bladders or vesicles, containing a clear, pellucid, serous fluid. If these vesicles remain unbroken for two or three days, the contained serum will become cloudy and opaque; but this is seldom the case, the

irritation causing the animal to scratch the vesicles, and these being ruptured, the serum escapes, and drying about the hair, forms crusts. These vesicles are frequently of a black or dark colour, owing to particles of dust drying in them. The escaped fluid seems to possess some irritating property, as it excoriates the surface of the skin over which it flows, leaving it in an inflamed and irritated condition. As the disease progresses, this discharge becomes thicker and more adhesive, stiffening the hair in the vicinity, the skin at the same time giving off a most fœtid odour. This, together with the putrefaction of the discharge, gives rise to a serious complication—particularly so in the case of long-haired dogs. The eruption thus continues in patches, until at length the whole body is one mass of sores from head to tail. In chronic cases the skin is dry, red, and covered with white crusts, with deep fissures between them, in the folds of the skin and the bend of the joints. The vessels of the skin become enlarged in these chronic cases; and by this increased supply of blood, the epithelial crusts become enormously increased, causing the skin to have a tense, tough feel, and to become very much thickened, the hair to fall off—and, in fact, when thus chronic, the disease resolves itself into Dermatoditis. This chronic Red Mange has been called *Eczema impetiginodes;* the skin is described as being very red and swollen, and the vesicles being apt to run together, with tumefaction over the scrotum, inside the arms, and on the back; as well as on those parts naturally denuded of hair. Eczema is sometimes seen inside the ear, and is then apt to be mistaken for "Canker"; but there are always some eczematous patches on other parts of the body, whereas "Canker" is confined to the ear alone. In Aural Eczema, the disease usually affects the skin of these parts, gradually extending inwards. The calibre of the meatus is narrowed—often so much so that it is completely stopped up; and if the ear is not frequently washed out, the watery or milky fluid that is discharged is apt to have a very bad odour. A form of Eczema caused by the incautious administration of mercury, either externally or internally, is called *Eczema Mercuriale*, or *Hydrargia.* The symptoms are the hair falling off in round patches, which become red and irritable, and from which a secretion oozes.

This eruption occurs chiefly inside the legs and on the scrotum, together with constitutional symptoms,—loss of appetite, salivation, dulness, and most offensive breath and exhalations from the skin.

Treatment.—Eczema rubrum is generally, if not always, due to derangement of the digestive system, caused by errors in feeding. A very common cause is excessive feeding on oatmeal; and I am satisfied that, in several instances, I have traced the cause to feeding on dog-biscuits of an inferior quality. If the disease is due to systemic causes, the discharge must not be checked from the skin before a counter-discharge is established, by increasing some natural excretion. In this case a strong purgative is clearly indicated. I have usually given a dose of castor oil, varying from four drachms to two ounces; some practitioners recommend jalap or calomel, but I prefer castor oil, as it is more bland and less irritating to the intestine—which is most important, considering the febrile state of the animal. It also serves a second purpose, for as the patients are generally over-fed and plethoric, it acts as a slight nauseant and furthers the depletive process. In prescribing a local application, avoid any irritant, the object being to constrict the vessels and thus dry up the discharge by means of an astringent. If there are only one or two small patches, sulphate of zinc—thirty or forty grains to the ounce of water—may be used; but if there is a large surface, tannic acid had better be substituted. If there is much itching, an ounce each of tincture of opium and solution of belladonna, with about a quart of soft water, will be useful in allaying it. The ointment of oxide of zinc is a good astringent in the more chronic cases, where no moisture is present. It is made by adding eighty grains of zinc oxide to an ounce of benzoated lard, which has been previously melted. The directions for preparing the benzoated lard, according to the "British Pharmacopœia," are: "Take of prepared lard, one pound; benzoin, reduced to a coarse powder, 160 grains; melt the lard by the heat of a water-bath, add the benzoin, and frequently stirring them together, continue the application of heat for two hours; finally, remove the residual benzoin by straining." In some cases of Eczema, I have noticed a peculiar fœtid condition of

the fæces, and great irregularity of the bowels. In these, the administration of twenty to thirty grain doses of hyposulphite of soda has a very beneficial result. The administration of arsenic must also be persevered in until physiological symptoms appear. The best preparation is the liquor arsenicalis. It is prepared by taking arsenious acid, one drachm; carbonate of potash, one ounce; and water, twelve ounces; mix and boil slowly till the arsenic is dissolved, and strain when cold. Each ounce will contain five grains of arsenic; the dose is thirty to sixty drops, two or three times a day; and to prevent vomition, it should be given on a full stomach. If the animal is in low condition, two to five grain doses of sulphate of iron, or three to five grains of sulphate of quinine, given daily, will be found a useful tonic. It may perhaps be worth while, in passing, to remark an extraordinary notion that exists among ignorant people—that "Red Mange" in the dog, and Foot-and-mouth Disease in cattle, are one and the same complaints. How this notion has arisen I am at a loss to understand, unless from a confusion in the names *Eczema rubrum* and *Epizoötic eczema.*

ANTHRAX IN YOUNG HORSES.

BY A. E. MACGILLIVRAY, V.S., BANFF, N.B.

THE occurrence of anthracoid affections in horses, in this country, is sufficiently rare to warrant the chronicling of such when they do appear. No apology is therefore necessary in offering the readers of the *Veterinary Journal* the following remarks.

A correspondent of mine—Mr. A. Gunn, V.S., Balloan, Beauly—furnishes me with details of four cases which have come under his notice, some of them quite recently, and two of them in his own practice; and from Mr. Gunn's description of the symptoms and history of the cases, I have no hesitation in designating the disease Anthrax.

Before giving the particulars of these cases, I may, perhaps, be allowed to refer to several writers who have recorded the

occurrence of cases of an analogous description. In the second volume of Fleming's "Veterinary Sanitary Science," Anthrax in the horse is minutely described in all its phases. During the latter part of 1875, an outbreak of equine Anthrax occurred in Australia; great numbers succumbed; and the symptoms were precisely like those met in Mr. Gunn's cases (see the *Veterinary Journal* for October, 1875). Mr. W. E. Litt, of Shrewsbury, in the same *Journal* for January, 1876, gives a case of a four-year-old cart-colt, which presented a distinct resemblance to the four cases here related. In the *Veterinary Journal* for December, 1876, Mr. R. Poyser, of "The Carabineers," gives an excellent report as to the prevalence of the disease in India; and the symptoms he enumerates are quite in accordance with those of Mr. Gunn's cases.

In writing to me, Mr. Gunn says: "Oblige me with your opinion on the following cases, one of which I had the other night;" and then goes into full details.

It seems the animals attacked were four colts, varying from one to four years old. All were at different places, and attacked at different times; and all succumbed to the disease. The symptoms, nearly alike in all, were as follows: pulse 90 to 100, and soft; temperature 103° to 105° F.; disease externally entirely confined to the head and face; much swelling about the face and in the submaxillary space and contiguous parts; swelling in some parts at times hot and painful; mucous membranes injected and of a livid hue; dark-coloured fœtid discharge from the nostrils; a great quantity of clear ropy saliva flowing from the mouth; the animal could walk and turn about quite easily, but could not eat—owing possibly to the painful swellings; the breathing from same cause difficult.

In the two cases attended by Mr. Gunn, the swellings commenced *very suddenly;* and all four patients died, as stated before. No *post-mortem* examination was made.

In so far as is known, says Mr. Gunn, all the colts were fed and treated in the ordinary way in which such colts are managed. He does not mention, however, if Anthrax (or *Charbon*) was prevalent amongst other classes of stock on the farms where these colts died.

I have met with a great many cases in young cattle, from three months to two years old, presenting all the symptoms described above; and in every case death took place within forty-eight hours—generally within twenty-four hours. In fact, any experienced practitioner must know how common it is for Anthrax (Charbon or Quarter-Ill) to attack young stock about the head, and the head alone.

Isolated cases of Anthrax in cattle are also so very common as to occasion no surprise at the same disease occurring in the case of the four colts referred to. The only suggestion I would offer to Mr. Gunn, in this respect, would be to ascertain if any "Quarter-Ill" had occurred at the same time amongst the cattle on the farms where these colts died.

I am confident that a good many cases of internal Anthrax (Charbonous Fever, without eruption) occur in the horse, are followed by sudden death, and on *post-mortem* examination are said to be Inflammation of the Bowels! True, Inflammation of the Bowels, either Enteritis or Peritonitis, does not cause such a sudden collapse of the vital powers, and is more amenable to treatment than are those sudden attacks (with colicky pains) of internal Anthracoid Fever without eruption, and which almost always cause death in from six to twenty-four hours.

In Williams' "Veterinary Medicine," we have a very interesting translation from the French, by Mr. James Anderson of Glasgow, on charbonous diseases, to which I may refer the reader for much valuable matter on this subject.

When making *post-mortem* examinations of horses dying thus suddenly, after severe suffering from colicky pains ending in delirium or at times coma, I have often been struck by the large patches of yellowish infiltration, streaked with blood, about the inguinal region, pectoral region, at various points here and there over the body, and in the areolar tissue beneath the skin; and taking these into consideration, together with the appearances presented internally (abdominal and thoracic)—such as black, thickened and infiltrated bowels, discoloured mesentery, bloody effusion, often enlarged and disorganised spleen, and, *even though opened immediately after death*, a most abominable effluvia—I have been forced to conclude, in my own mind, that

Anthrax, or in other words "Charbonous Fever," had caused death.

The subject is well worth extensive investigation, from some one with plenty of spare time.

[That Anthrax in its various forms attacks animals in this country—and particularly the herbivora—there is abundant evidence to prove; and that it was perhaps more prevalent in early times, we might infer from the historical evidence furnished in "Animal Plagues," where we find that the malady was most destructive to animals, and scarcely less terrible to mankind by transmission, which could so readily take place in those primitive ages. The disease is a most interesting one to study, and particularly with reference to its bearings on the germ theory of disease. Its symptomatology is tolerably well described in the works alluded to by our valued correspondent, and the microscopical lesions are also alluded to in detail. But in this malady, more perhaps than in any other, the value of the microscope is best demonstrated. Our numerous translations and references prove this; and when any doubt exists as to whether a disease is anthracoid in its nature, we would counsel recourse to this instrument, which should be familiar to every veterinary surgeon. The presence of the *Bacillus anthracis* in the blood is diagnostic of the disease.

We require a careful examination of the blood in the so-called *Black Quarter;* and if any member of the profession has an opportunity of sending us a very small quantity obtained from a living animal, and enclosed in a hermetically sealed capillary tube, or in a very small phial filled and sealed, we shall feel much indebted.]

FLEMING TESTIMONIAL FUND.

A MEETING of the Provisional Committee of the Fleming Testimonial Fund was held at the Royal College of Veterinary Surgeons, on February 18th, the President, Major-General Sir Frederick Fitzwygram, Bart., in the chair. Resolutions were passed, to the effect that the time had arrived when steps should be taken to carry out the proposed testimonial, and also that circulars should be issued and advertisements inserted in certain specified journals and newspapers to that effect. (See advertisement in the present issue of the *Veterinary Journal.*)

R. WARD, F.R.C.V.S.

Editorial.

THE CONTAGIOUS (ANIMALS) DISEASES BILL.

Our readers will observe from the Parliamentary intelligence reported elsewhere, that at last there is a prospect of the recognition by Government of the services which can be rendered by veterinary science, and that the prevention and suppression of some of the more destructive diseases, which are so ruinous and harassing to our agriculture and serious to the public, are likely to be attempted with some earnestness, and, we may say, with much hope of at least partial success. For a long time we have stood almost alone in the profession in urging the great necessity there existed for efficient measures to combat these grave disorders; and during the last eight years we have seized every opportunity of pointing out, not only the absurdity of the measures in force, but the positive injury and hardship which attended their execution. More especially have we insisted on the institution of a veterinary sanitary organization directed by central authority, and composed of the most competent veterinarians the country could produce. We have also indicated the functions of this organization, and laid down rules for the guidance of its officials, as well as the manner in which contagious maladies should be combated. It is, therefore, with some degree of gratification that we announce an approach to our scheme, and that the country is at length to receive some of the benefits which can be conferred by veterinary sanitary science.

We need not now inquire how it comes to pass that England is the last country in Europe to institute such an organization, and to take something like effective precautions against preventable diseases which have robbed her of millions of pounds, and have proved so injurious to her agriculture. The reason might be given in a few words,—the neglect of veterinary science by this country, and consequently the backwardness of that science. For nearly forty years, at least two most hurtful scourges —Contagious Pleuro-pneumonia and Foot-and-Mouth Disease—have prevailed; and it may be asserted that until a few years ago nothing whatever was done to limit their ravages, while the measures recently adopted have proved futile. When these maladies first invaded England nothing was known of their history; and, notwithstanding the most palpable evidence of their extension being solely due to their infective properties, the opinion entertained by those who were supposed to have most knowledge, was that they were due to "something in the air." This was the notion entertained, we believe, by a veterinary adviser of the Government; and we need not wonder, when such was the case, that nothing was done to diminish the prevalence of these disorders. Antiquated notions such as this have prevailed, and, we fear, still prevail, even in our profession, as to preventable diseases, and the relations towards them of veterinary science. There is only too abundant evidence that some authorities consider that the chief functions of the veterinary surgeons are to "blister, physic, and glyster" sick animals, according to the precepts of fifty years ago, and that sanitary science has but

little place in their minds. Fortunately, these men have now but little influence, and they are left behind. We say fortunately,—because there can be no doubt whatever that their notions and their influence have had a most disastrous effect, not only on the progress of veterinary medicine, but also on the agriculture of this country.

We shall reserve our comments on the Bill introduced into the House of Lords by the Duke of Richmond, until it shall have undergone discussion in the House of Commons, where its clauses may sustain very material modification. We may now, however, give it as our opinion, that though some of the most important of the proposed measures are not so thorough, or likely to be effective, as we should desire, yet that, as a whole, they will go a long way towards achieving the great object for which they were devised, provided always that they are carefully and rigidly enforced. The veterinary profession must feel particularly interested in this important advance in sanitary science; and the opportunity it will give its members of largely benefiting the public is to us a great source of satisfaction. Hitherto veterinary surgeons have formed only a small proportion of the inspectors employed throughout the country—by far the larger number being policemen, quacks, or anything else. Though the late veterinary adviser of the Privy Council, in giving evidence before the last Select Committee on Cattle Diseases, appears to have expressed himself as quite satisfied with this state of affairs, yet, as in several other important matters, the Government is not; for it is now proposed, in the present Bill, that none but veterinary surgeons are to be employed by local authorities as inspectors. This is certainly a great boon to the profession, and it will prove no less an advantage to the public.

The Bill is in no sense whatever what some politicians, either from mental perversity or for party purposes, call a protectionist device, intended to give farmers a monopoly in the meat market. It is simply a Bill for the prevention and suppression of most destructive maladies; and we trust the profession will exert itself to the utmost in assisting to carry it through both Houses of Parliament.

CATTLE INSPECTORS IN AUSTRALIA.

We have frequently referred to the subject of animal diseases in our colonies, and to the necessity for adopting proper measures for the exclusion of those maladies which might be imported from without, or the suppression of those which are already prevalent within their boundaries. The animal wealth of some of our dependencies is very great, and in fact constitutes their chief value and importance.

The prevention or suppression of contagious disorders is, therefore, with them a matter of great moment,—the welfare of these colonies being so closely related to the prosperity of our great empire. For this reason it is that Australia has been so often alluded to by us, as it is, of all the colonies, the one whose material progress is most closely dependent on its live stock. In the last number of the *Journal*, we drew attention to the agitation now existing among stock-raisers in that country, with regard to the prohibition

of importation of cattle from this and other regions, and insisted on the necessity for instituting an effective veterinary sanitary organization, with qualified veterinary surgeons to carry out the necessary preventive or suppressive measures. Until this is done, Australia certainly cannot with safety permit foreign animals to enter her ports, neither can she free herself from the disorders which now diminish her flocks and herds in number or value, and cause inconvenience and hardship.

It is true that a kind of inspection has been in existence for some time,—and in some parts it has proved useful to a certain extent,—but it would appear that the majority, if not all, of the inspectors are non-qualified men, and that it is some of these who most strenuously oppose importation of exotic stock, and go in with all their force for a system of blind protection. Perhaps the reason for their doing so is owing to the suggestion that, should importation be allowed, inspection and quarantine must be rigidly carried out at the ports, and that only competent veterinary surgeons shall be employed. This some of the present inspectors seem to dread, as it would appear that many of them receive large salaries for performing what we would surmise to be light duty; and we need not therefore be astonished to find one of these gentlemen, who occupies a comfortable and very remunerative post at Melbourne, one of the leaders in the proctectionist movement, and at times indulging himself by depreciating the character or abilities of veterinary surgeons. From recent information, we have reason to believe that at least one of the Australian colonies is moving in the right direction, and that there is a probability that it will avail itself of the services of trained veterinary surgeons to carry out those sanitary measures for which scientific knowledge of a special kind is absolutely necessary. The grounds for this belief are furnished in the evidence which comes to hand by almost every mail, and more particularly in the following editorial remarks which appear in a recent issue of the Melbourne *Leader*:—

"It will be satisfactory to stock-owners to know that the Chief Secretary, in whose department the matter lies, has expressed his intention of remedying during the recess the defects of the above measure. With the suggestion made in Parliament, and partially adopted by Mr. Berry, that the total cost of working the Act should be borne by stock-owners, we do not at present propose to deal, but would refer specially to the urgent need that exists for reform in the class of inspectors employed. At present the department is totally devoid of that knowledge, the possession of which should form the first requirement in the qualification of those whose duty it is to prevent, detect, and cure the diseases that may arise among the stock of the colony. The officers of the department, from its head downwards, have been appointed without any regard to veterinary knowledge. As was pointed out by one member, the officers were first appointed under the Scab Act; and notwithstanding the fact that Scab does not now exist in the colony, they still draw their salaries for duties supposed to be performed under that measure. From a return furnished to Parliament as to the particulars of the working of the Diseases in Stock Act since December, 1872, up to June, 1877, it was made to appear that the total cost for the four years and a half amounted to £14,735, as compared with a revenue of £35,747 for the same period—the latter obtained by a charge of 1*s.* per head collected on horses and cattle, and 1*d.* per head upon sheep coming into the colony. It was ascertained that this return did not convey a true statement of the situation, as inspectors whose names appeared under the Stock Act as receiving £50 and £25 per annum were receiving under the Scab Act salaries of £750 and £500 per annum respectively. The chief inspector, it appears, whose name is found under the Diseases in Stock Act as receiving £50, has a total salary of upwards of £800; while about ten sub-inspectors, who are made ostensibly

to receive £25 each under the Diseases in Stock Act, have in fact annual salaries of £540 each. The total cost of the department, stated by the return to amount to £14,735 for the period of four years and a half, extending from December 1872 to June 1877, is found in reality to amount to a total of £45,000, or at the rate of £10,000 per annum, which is about £2000 in excess of the receipts. Our contention at present, however, is not against the amount expended, but that value is not received for the money. Men who were originally appointed to deal with Scab in sheep are, now that Scab is non-existent, permitted to draw their salaries as officers under the Diseases in Stock Act, for which position we submit they are incompetent. Scab in sheep is an insect which is detected on the animal by means of a magnifying glass, and its detection does not involve the possession of any veterinary knowledge on the part of the inspector; but it is a different matter when the business to be dealt with comprises the hundred and one diseases which animal flesh is heir to. It may not, perhaps, be indispensable that the political heads of the departments should be professional men; but what would be said of permanent and sub-heads being appointed, without professional knowledge, to the Education, Railway, Water Supply, Public Works, Land Survey, Law, Observatory, or any other branch of the public service? Then why should the important department dealing with the valuable stock interests of the colony be treated exceptionally? The answer would appear to be that Mr. Curr, having originally been appointed as head of the Scab department—a post which did not involve technical qualifications—must now, so as not to inconvenience an old officer, be allowed to retain the place of head of the department dealing with the diseases of stock in Victoria, notwithstanding that he is unfitted for the position. We do not say that every officer in the department should be a veterinarian. Doubtless with proper heads and sub-heads to direct matters generally, much of the detail work could be carried out by the present non-professional staff. There can be no question, however, as to the necessity for a professional man as supreme director, and being responsible to no other authority than the political head of the department. This, and say four or five veterinary sub-inspectors, working in combination with the present lay element, would, we submit, fully meet the requirements of the case. It is urged by Mr. Curr that he can avail himself of professional advice when it is required; but the objection to this is that he, a non-professional, has the option of discarding professional advice when it does not tally with his own opinion. Then, owing to the want of veterinary sub-inspectors distributed throughout the colony, disease has the chance of getting itself well established before anything is heard of it. A statement made in Parliament last week as to the progress of stock diseases throughout the colony, was called in question by a stock-owner; but our contention is that the stock-owners themselves are, for obvious reasons, the last persons who will disclose the presence of disease, and that we have not at present a department that can detect it."

In her resolve to protect herself from the ravages of preventable diseases by instituting sanitary measures and enlisting the services of duly qualified veterinary surgeons, Australia is following in the wake of all enlightened European countries.

VETERINARY HONOURS.—It gives us much pleasure to announce that our distinguished colleague in the French army, M. Mégnin, has been highly commended by the Académie des Sciences, for his "Monograph on the Tribe of Psoric Sarcoptidæ."

Proceedings of Veterinary Medical Societies, etc.

CENTRAL VETERINARY MEDICAL SOCIETY.

At a meeting of the above Society, held at 10, Red Lion Square, W.C., January 17th, at seven p.m., the President in the chair,

Mr. Roalfe Cox brought forward an assortment of nails, buttons, and pieces of small ironware, found in the colon of a horse. There was no history afforded, other than a perverted appetite and non-mastication of the food—oats especially. He also directed attention to the use of terebine as a dressing for wounds.

Mr. J. H. Steel then read an interesting paper on the prevention and cure of Rabies; after which, in the discussion, Mr. Fleming expressed the pleasure he felt at the subject being introduced, as it had enlisted so much attention at the present time. It went to show the value of veterinary science, and its influence on sanitary legislation. Legislative measures must depend on the public knowledge of the disease to be suppressed. There was much debateable matter to debate on—especially the spontaneous generation theory, where even the highest authorities were not agreed; and legislation must be imperfect while such belief prevailed. He did not see the possibility of rigid isolation for the period of seven months: those who dealt with the isolation of larger animals would admit the difficulty in their seclusion; and in the case of the dog, which abounded everywhere, it would be more so. Then the period was a long one, and likely to be useless, as the period of incubation was sometimes twelve months. The experience on the Continent was in favour of a high tax; he considered the present tax too low, and that a shepherd's dog, being useful, was worth paying for; with regard to those kept merely for pleasure, it was a luxury the owner could afford to pay for, even at a higher rate. The spontaneous theory was untenable, from the fact of the immunity of certain countries. In muzzling he had no faith as a preventive. The treatment was a serious question, every form having failed; the supposed curative curare was a dangerous one, requiring the greatest watchfulness; and if given for any length of time, almost certain of producing death. It was ascertained that the lesions of the central nerves were so great and marked that it was questionable if restorative function could be produced. If treated by the salivary glands, bitten animals had been salivated with mercury without success. On the question of no remedy being possible, and the humanity of taking the life of the hydrophobic subject, he was astonished that it was advocated. He doubted not that in medicine eventually would be found remedies for all diseases, and that efforts at finding a cure would be made till successful. He feared the disease was not always localised, as they had been told; for in the case of a cow bitten on the tail, and there only, which was shortly after amputated, it did not save the animal's life. That there were many obscure points he admitted, but he knew of no instance where, with well-marked symptoms, recovery had ensued. He thought the veterinary profession had it in their power to do an immense amount towards dispelling ignorance and increasing the public knowledge of the malady. He was not aware that suction had produced harm; but he knew it cleaned wounds without danger to the operator, and would not hesitate to resort to it, for himself or another. He regretted the idea was promulgated, as it lessened the victim's chances of recovery. Caustics were not, as a rule, accessible; but he had great faith in the actual cautery, because of its ease of obtainment,—and while heating the iron suction could still be obtained. Excision was more clumsy and painful, and liable to retaint the wound more than iron at a white heat.

Mr. ROALFE COX said, it being agreed as advisable to destroy a part in immediate contiguity to the wound, and, bearing in mind the tortuous direction of the teeth inflicting it, lunar caustic being difficult to introduce, it occurred to him that a pipette filled with fluid, and introduced in the wound, would be better able to ramify over the surface.

Mr. HUNTING said that prevention was really the most important point; but it must be undertaken with the idea that it spreads by contagion, for they could make no provision for the spontaneous origin. It was a remarkable fact that Rabies followed some social convulsion on the Continent of Europe. On the Continent Rabies was of constant occurrence, and was reintroduced here by persons returning with their pet dogs from a country where it spread easier, as there was no sea boundary. The suggestion as to recording the premonitory symptoms on the dog-collar, he commended, as it would call attention to the need of noticing peculiar changes in the dog, which would be valuable, and, from the alarm now general, would cause nearly every one to read them. Muzzles he did not agree with, for there were muzzles *and* muzzles, and different ways of fixing them. He believed in the law enforcing the use of a collar with name and address—its absence to indicate a stray dog or an escaped one. Rabies was a progressive disease, and not an evanescent one; from its appearance till death there was no intermission: supposing there were, it would afford a loophole for the disease to escape notice under the best-regulated measures. In four days, as a maximum, the dog was dead; so a few days' detention afforded a reliable means of diagnosis. On the question of bite there was no need for special enactments, for the common law provides for civil damages, and from injury by a savage dog, if you prove the owner's knowledge. The further discussion was then adjourned, owing to the lateness of the hour.

Professor Pritchard was declared duly elected, and the meeting adjourned. Present—nineteen fellows and five visitors.

MIDLAND COUNTIES' VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above Association was held at the Star Hotel, Worcester, on January 14th. The President, Mr. H. J. Cartwright, of Wolverhampton, occupied the chair; and among those present were Professor Williams, Edinburgh; Messrs. Thos. Greaves, Manchester; A. B. Proctor, Coventry; F. Blakeway, Stourbridge; J. W. Hill, Wolverhampton; H. R. Perrins, Worcester; J. L. Barling, Hereford; Wiggins, Market Harborough; H. M. Stanley, Birmingham; Goule, Malvern; O. J. Hills, Leamington; W. Carless, Stafford; G. Carless, Worcester; Rose, Alcester; R. Cartwright and Beddard, Wolverhampton; Collett, West Bromwich; Faulkner, Manchester; Coe, Stoke-upon-Trent; S. D. Newby, Bradford; W. Dale, Coventry; Pinkett, veterinary student. Letters and telegrams stating inability to attend were received from Messrs. J. Carless, Holne, E. Price, jun., Pyatt, E. Stanley, Hodgkins, Bryer, Bowles, and G. Morgan.

Mr. G. CARLESS, Hon. Sec., proposed the following as new members: Professor Pritchard, Royal Veterinary College, London; Messrs. W. Bryer, Cheltenham; A. Bowles, Abergavenny; and H. Dale, Coventry. Mr. J. L. BARLING proposed Mr. F. W. Barling, Ross, and Mr. C. W. Barling, Newnham. They were all unanimously elected.

The PRESIDENT then delivered the following inaugural address:—

"FELLOWS AND MEMBERS OF MY PROFESSION,—In rising to address you, permit me, in the first place, to thank you for the honour you have conferred upon me in electing me your president for the present year. I felt great diffidence in accepting this honourable position—one which has been so ably

filled for several years. However, with your indulgence, I will endeavour to perform its duties, and to the utmost of my ability promote the advancement of our profession. There are a great variety of topics which I am anxious to discuss in this address, as it is right they should be from time to time brought prominently before the profession, so that every member can see what is going on in it, and what progress is being made.

The Royal College and the Schools.—"The chief interest in our profession always centres in the Council of the Royal College of Veterinary Surgeons and the teaching schools. In alluding to these it will be necessary for me to refer to the preliminary examination of the youth as he enters the college. This step has become absolutely necessary, and has been adopted at each college; but as now conducted it is open to abuse, and the good that might accrue is only in part secured. It should, by all means, be conducted by examiners appointed by the Royal College of Veterinary Surgeons, in order to secure a uniformity of test, instead of, as at present, the schools appointing their own examiners. We find that a student rejected at one of the colleges may present himself before the examiners of another college and be admitted. This could not take place if all examinations were presided over by one authority. If this arrangement were properly carried out, it would raise our profession to a higher status. The lengthened term of study required at college has been found necessary in consequence of the greater number of subjects taught, and each subject being taught more fully than in the past. There are now five sessions, or what are called five terms, instead of two sessions as formerly.

The New Charter.—"The new Charter provides that the annual meeting shall be held in London, Edinburgh, or Dublin, instead of always held in London, as before. The tendency of this alteration is apparent,—it will remove in a great measure the jealousy that has ever existed on this point. The new Charter enables the whole profession to take part in the elections of members of Council by voting papers, instead of, as heretofore, being compelled to attend personally the annual meeting in London on the first Monday in May in each year for that purpose. I flatter myself you will all agree with me that the tendency of this change is to cause the members of the profession throughout the length and breadth of the land to feel a greater interest in the welfare of their profession, and is more likely to secure the best men that can be found, and ensure the bringing forward of the best measures for the advancement of our profession.

The Reorganization of the Court of Examiners.—"I cannot too highly commend the action of the Council in the change they have adopted in the Court of Examiners, both sections being composed as nearly as possible of the same examiners. By this means the students educated in the Scotch schools will have precisely the same test as those who have been taught in London. The election of examiners is now for five years instead of for life, as was the case before. This of itself has a tendency to raise the profession; it holds out an inducement to those of its members possessing talent and education of one day occupying the high and honourable position of examiner.

The Practical Examination.—"Until recently the examiners had no means of testing the student as to his practical attainments. This is a point which I have always considered of very great importance, and it was highly satisfactory to me to find the Council adopting means of testing the student as to the extent of his practical knowledge in manipulating his patient and diagnosing disease. For after all, gentlemen, when we come face to face with the realities of our calling we shall always find that this knowledge will be the most important element towards our success in after life. It is notorious that the man who possesses this practical knowledge in

the highest degree is the most sought after, and commands the greatest confidence. So strong are my convictions upon this subject, that I feel I cannot perform a greater service to my profession on this occasion than to urge most earnestly upon the young practitioner and aspirant (if he is desirous of becoming clever and respected, and as such an ornament to his profession) to become as proficient as possible in a department which is so essential to a man of business. I mean a man of business habits: one who must be able not only to understand the ailments of his patient, but also to explain it to the employer in an agreeable and satisfactory manner; or, in other words, he must instinctively, as it were, diagnose correctly, treat properly, go about his work in a workmanlike manner, use discretion, frankness and tact with his employer, avoid too much loquacity or the contraction of offensive manners, be attentive and diligent to his duties, smart, steady and industrious in his habits, strictly punctual and honourable in all his engagements, avoid making charges out of proportion to services rendered,—and it must follow that he will gain the esteem and confidence of his employers, be a credit to himself and an honour to the profession to which he belongs.

Examination of the Student for his Diploma.—"This is another subject which I am anxious to refer to. It has been the custom until recently for the student to undergo only one examination for his diploma. He is now subjected to an examination at three different periods of his studies. The great advantage of this will be apparent to every member of the profession. The student is enabled to concentrate the whole of his attention on the number of subjects specified for that session. He then undergoes an examination in those subjects. If the ordeal is satisfactory, his mind is then relieved of them, and he is at liberty to give his whole attention to another division of subjects, which occupy another session, and so on until he completes his studes. By the adoption of this course the student of the present day is enabled to become more efficient in every department of his studies; and with these advantages it is expected he will be better able to combat disease in its various forms—'a consummation devoutly to be wished for.'

The New Charter and the Penal Clause.—"This is a subject which many of my professional brethren feel strongly upon. The Council were most anxious to have it incorporated in our New Charter; but they were advised by the Parliamentary agent that it would be entirely inoperative in a charter, and that such a power can only be authorised by an Act of Parliament, to make it an indictable offence for any man to assume the name and title of 'veterinary surgeon' who does not possess a diploma from the Royal College of Veterinary Surgeons, as well as to give power to a magistrate to inflict a penalty or fine of ten pounds for each offence. You may be ready to ask me why the Council do not at once apply to Parliament for such an Act. In answer to that question I say the present time is inopportune, as a strong opposition would be brought to bear. However, we have good reason for believing that by waiting a little time it is probable that this opposition will no longer exist. We have much better opportunities of knowing the feelings and intentions of those who think it is their interest to oppose us. This matter is very delicate; you will therefore, I am sure, not expect from me a more minute or definite explanation; but you may feel assured we shall be unanimous in applying to Parliament when the time comes, and such an application in my humble opinion will be successful. It is, I assure you, with feelings of pride and gratification that I can say I have always identified myself with the party of progress in the Council, and in every one of the measures which I have referred to my vote has been given always with the ayes.

"I cannot conclude without expressing my regret that the endowment left by the late Professor Dick for the advancement of veterinary science is rapidly dwindling away. In the December number of the *Veterinarian* it is stated that the Dick Trust is in debt to the extent of £4527, and that there was an increase of the indebtedness during the year 1877 of £722, making a total sum of £5249. It has been my opinion that two schools are sufficient for Great Britain; that if this were the case better teachers would come forward, and consequently the students would receive greater advantages. Having these views, and looking to the rapid diminution of the Dick estate, I would humbly ask my friends in the North if the time has not arrived for them to reconsider their positions, and to close a contest which has hitherto been of no advantage to themselves or to the profession.

"Gentlemen, allow me again to thank you for the high honour which you have conferred upon me, and for your kind attendance here to-day. All I can do for the advancement of this Society shall be done willingly and with great pleasure; and I trust that I shall, with your kind assistance, leave the Society to my successor even in a more flourishing condition than it has been left to me."

Professor WILLIAMS opened the discussion. He quite agreed with the President that the preliminary examination was on a wrong basis. He had always been of opinion that it should be conducted by examiners appointed by the Royal College of Veterinary Surgeons; but he yielded to the persuasion of his friends (who said that half a loaf was better than no bread), and consented to the establishment of an examination board in connection with the schools. He should hail with gratitude the day when the schools would be unanimous on the point, and should most readily give up the power he now held. It was gratifying to possess power; but if it were a bar to the advancement of the profession, the sooner it was taken away the better. He believed there would be almost unanimous consent in Scotland; but he was sorry to say the London schools had objected all along. As to the subject of apprenticeship, he knew there was considerable feeling in the profession. He thought he saw his way, in the course of time, to a compromise in the matter, which would be beneficial to the schools, the students, and the profession at large. Instead of having two summer sessions, he would suggest that there should be one, the second summer to be spent with a veterinary surgeon. When a student had passed two examinations, it was, he thought, a hardship to compel him to be at college during the next few months. In regard to the number of examinations, perhaps two might answer the purpose better than three. He was sorry to come to the conclusion that some young men cared little about the subjects they were examined upon, and when they went before the world as practitioners, they had forgotten many things which were essential to success. The question of a penal clause had been touched upon by the President in a very delicate manner, and he would only ask the profession to refrain from taking any hasty steps; then, in a very short time, they would have a penal clause without any opposition. The President had hinted that there were too many colleges in Scotland, and, as the representative of the one last founded, this rather touched him on the raw. He was a student of the school founded by Professor Dick, and its success was dear to him; but such was the force of circumstances that he was compelled, in defence of his own good name, to establish a second college in Edinburgh, and he was glad to say that so far it had prospered. Referring to the President's remarks as to the importance of practical knowledge, Professor Williams said he thought it would be a good plan, if the means of doing so could be found, for young men of ability, who were capable of teaching the practical part of their profession, to be kept at college for two or three years after obtaining their diploma. The students could then be divided into classes of twenty or

thirty each, and placed under the charge of those teachers—the work being superintended by the principal and other professors. By that means they would have a better class of men sent out from the colleges than in the past, for it was well known that many students who passed the examinations went before the world with very little knowledge of the practice of the profession.

Mr. GREAVES testified to the encouragement which Professor Williams had always given to the movement in favour of a preliminary examination of students, and pointed out the importance of such an examination. He thought the time would come when it would be more strict, and it would be all the better for the profession. He was pleased to hear Professor Williams say that it would perhaps be better if some of the time devoted to the subjects now taught at college were spent in practical teaching. The youth who saw practice before he went to college (and he might see it also whilst he was there), would be best qualified to do himself and the profession good in after life. In regard to apprenticeship, Professor Williams had made a suggestion; and he (Mr. Greaves) thought it would be a considerable step in advance, if it were made a condition of a student being examined for a diploma that he had been with a practitioner for three or six months. Then, in a few years, they might get the time extended, and so secure a great boon to the profession.

Mr. H. STANLEY said they should not be satisfied until there was a year's apprenticeship clause. He thought there should be an expression of the opinion of the meeting on this point.

Mr. W. CARLESS said that members of the profession would do a great deal of good if, when they had opportunity, they pointed out to parents and guardians how important it was that students should spend a portion of their time with practitioners.

Mr. BARLING was in favour of the meeting expressing their opinion that there should be an apprenticeship clause. He thought there should be a two years' apprenticeship, and that during the last winter the youth should be allowed to go to college.

Mr. WIGGINS and Mr. PERRINS also spoke in favour of apprenticeship for at least two years.

Mr. PROCTOR suggested that more practice might be obtained at the colleges.

Mr. BLAKEWAY, being solicited to make a few remarks, spoke of the necessity of students acquiring practical knowledge, but thought it would be inopportune to pass a resolution at that meeting.

Mr. GREAVES said that when the Act of Parliament was applied for, a clause might be inserted dealing with this matter.

The PRESIDENT agreed with Mr. Blakeway that it would not be advisable to pass a resolution, but said the feeling of the meeting was clearly in favour of apprenticeship.

On the motion of Professor WILLIAMS, seconded by Mr. PROCTOR, a vote of thanks was passed to the President for his address; and the meeting requested him to allow it to be published, to which he consented.

Votes of thanks were also given to Mr. Blakeway as treasurer, and Mr. G. Carless as secretary, and the proceedings then terminated.

Subsequently the members dined together at the "Star," Mr. Cartwright being in the chair and Mr. G. Carless in the vice-chair.

After the loyal toasts, the CHAIRMAN gave "The Army, Navy, and Auxiliary Forces," and expressed his regret that, owing to the insufficient remuneration of army veterinary surgeons, that branch of the service was deficient in numbers.

Mr. PERRINS responded as an officer of the Worcestershire Yeomanry.

The VICE-CHAIRMAN proposed "The Royal College of Veterinary Surgeons," and spoke very highly of the President, General Sir Frederick Fitzwygram. He coupled the name of Mr. Greaves with the toast.

Mr. GREAVES, in responding, referred to several measures which he regretted to say the President of the College was not able to carry in the Council, and he also forcibly urged the importance of practical teaching.

Mr. BLAKEWAY gave "The Examiners," and Professor WILLIAMS replied. He said that the President of the Royal College was thoroughly sincere in his desire to advance the profession, and if his proposals had been accepted in good faith, they would have had important results.

Mr. PERRINS proposed "The Veterinary Schools."

The next toasts were "The Visitors," for whom Mr. FAULKNER replied, and "The Ladies," for whom Mr. GOULE returned thanks.

Professor WILLIAMS proposed the health of the Chairman, who suitably replied.

Mr. BLAKEWAY gave the health of the Vice-Chairman. He said he had known the family of Carless for years, and to know them was to esteem them. They had always acted in a way that conduced to the welfare of the profession, and tended to raise it in public estimation. Mr. Carless, senior, was an old friend of his; he was one of the first members of the Association, and they regretted that he was not with them that day. The younger members of the family were also familiar to them, and he was glad to see them present. He proposed the health of Mr. G. Carless, both as Vice-Chairman and as their Secretary; the manner in which the duties of his office were performed entitled him to their hearty thanks.

The VICE-CHAIRMAN expressed his thanks to Mr. Blakeway and the company.

The remaining toast was "The Press," with which the name of Mr. DAVEY (*Berrow's Worcester Journal*) was associated.

Songs were sung, and the proceedings evidently afforded sincere pleasure to all present.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting and dinner of the above Association was held at the Blackfriars Hotel, Manchester, on Friday, the 8th of February, Mr. Tedbar Hopkin, President, in the chair. There was a large attendance, the following gentlemen being present: Professor Williams, Edinburgh; Professor Gamgee and Mr. Priestly, Owen's College, Manchester; Dr. Watson, Messrs. John Lawson, Alexander Lawson, Peter Taylor, Thomas Greaves, Thomas Taylor, E. Faulkner, and W. A. Taylor, of Manchester; Elam, Moore, R. Reynolds, Leather, jun., D. Hutcheon, James Watson, and W. W. Townson, of Liverpool; Cartwright and Hill, of Wolverhampton; G. H. Darwell, Northwich; J. Hart and J. Bunnell, of Oldham; W. Dacre, Altrincham; D. Brooks, Pilkington; W. G. Schofield, of Pontefract; J. B. Taylor, Ashton; S. F. Fallding and H. Beard, Macclesfield; C. Challoner, Pendlebury; James Rowe, London; A. Challoner, Bolton; and the Secretary.

Letters of excuse were received from Professors Pritchard, McCall, and Walley; Messrs. G. Fleming, M. J. Harpley, Gerrard, Heyes, Howell, Woods, etc.

The PRESIDENT, on rising to deliver his inaugural address, was received with applause. He said—

"GENTLEMEN,—At the commencement of another term of office, I cannot help being impressed with the thought that it would have been better for all concerned if I had followed the promptings of my own feelings, and adhered to my resolve to answer in the negative your kind proposal that I should

permit myself to be re-elected. However, labour in a good cause brings its own reward; and although lacking scholarly ability, and many other qualities that I would fain see the President of our Association possess, I try and console myself with the thought that, if small in degree, yet so far as in my power lies, I have laboured honestly to advance my profession and our Society; so that I may without presumption conclude that my brethren appreciate those labours, and have done me this honour in recognition of them.

"Publicly acknowledging your kindness, and thanking you for it, you will permit me to ask you to readily comply with an earnest request for continued help and co-operation in the working of our Association; so that, passing from such a memorable year as 1877 has been to the veterinary profession, we may, while striving for fresh laurels, not forget to consolidate and give effect to the labours of the past.

"Old abuses and relics of past ages have, some of them, disappeared; whilst those that still cling to us must speedily give way if, with the organization we possess, the men at the head of our profession—to whom we owe so much already—are only ably, honestly, and perseveringly supported by the profession at large.

"Representing, as we do, a scientific body in one of the foremost nations of the world, with perhaps more just cause for its unbounded national pride than any other, let us, with the true spirit of Englishmen, not rest until we gain for our profession what is accorded to our country—the first position on the scroll of fame. Looking, then, at the great and important work that lies before us, with a will and energy that increases with the degree of the difficulty to be overcome, let us not remain satisfied with the little we have done, but remember how far—very far—we are from perfection,—nay, even from being presentable; also that

> "'The heights by great men reached and kept,
> Were not attained by sudden flight;
> But they, while their companions slept,
> Were toiling upwards in the night.'

"As the nations of the world emerge from barbarism, and ascend in the scale of civilization, the governing powers, as a rule, base their respective laws on the result of knowledge imparted by the body of men studying each particular branch of science, excepting perhaps one, and that not one of the least important—medicine,—in which, in our country, the laws are made first, and the scientists consulted afterwards. Why this principle should have been in vogue is easily explained. With individuals, as with the nation, the tendency has, until very recently, been a fixed and firmly-rooted resolution to have nothing to do with doctors until nature compelled people; and as a last resort, if you consult one of the faculty, he will, for lack of patients, keep you in a state of vacillation between life and death for an uncertain period, depending upon your ability or non-ability to pay the bill. The lack of *skill* on the part of those practising medicine no doubt was the primary cause. As we trace it from the barbarous herbalist to the barber with his skill in phlebotomy, the blacksmith with his fleams and oils, then the heroic practitioner of twenty years ago, until we find it now being divided into branches many of which will tax to the utmost the ability of our cleverest modern scientists, and after their lives are spent still leave scope sufficient for the superabundant ability of any members of the coming race—we can note this influence at work.

"The late Professor Stokes, of Dublin, in one of his presidential addresses, expresses the idea exceedingly well. He says: 'When medicine is in a position to command respect, be sure that its rewards will be proportionately increased, and its status elevated.' In the history of the human race, three

objects of man's solicitude may be indicated: first, that of divinity; next, that of law or government; and, as man often seems to love gold more than life, the last is medicine. But with the progress of society a juster balance will obtain, on condition that we work in the right direction, and make ourselves worthy to take a share in its government. Medicine is generally studied and practised with relation to the treatment of disease in man and the lower animals; and whilst admitting the greater and higher claims of the life of man, yet animals are so essential to that life, that the management and preservation of them becomes a necessity. And in Great Britain, veterinary medicine is at length an acknowledged science. Had Rinderpest been a slow and insidious disease, like Pleuro-pneumonia, it is very probable we should have had it now fairly acclimatized and established in our midst. Good sometimes, however, appears to come out of evil. The rapidly spreading and fatal effects of this malady so startled the country, that legislative interference was decided upon; and as the result of the importation of Rinderpest, we have on our statute book 'The Contagious Diseases (Animals) Act of 1869.'

"Let us briefly glance at our relation as a profession with the Government of our country. It would be only natural to conclude that the body of men specially devoted to the study of this branch of medicine would be consulted in the framing, and called upon, in the ordinary course of things, to assist in the carrying out, of these laws. Such, however, has not been the case; and, as already hinted, it is as much the fault of the profession as the Government. The members of the legislature came in contact at home with an old practical farrier or cow-leech, or maybe a *bonâ-fide* veterinary surgeon whose social status and intellectual ability were not of the order to inspire any one with the idea that he was a suitable individual to consult upon a national question of such magnitude.

"The heads of the profession may not be to blame, but one is inclined to think that if they had been more free from the universal apathy a better state of things might have been inaugurated.

"Though ignored in a great measure by the legislature in the past, if our ranks become filled with men of undoubted ability and imbued with the right spirit, the public will find we are men whose opinion and advice are worth asking for, and that we are practising our profession, not merely for the fees it brings us, but because we are devoted to it for the pure love of it. I say, when this is achieved, the country and the Government will look to us for help, and be guided by our advice.

"We must not forget the difficulty there is in legislating upon a question like this. The agriculturist, stock keeper, and cattle importer are, as a rule, law-abiding sections of the community, and any law that interferes with the commercial freedom of the British subject demands not only care in framing, but judicious administration. The objects of the Acts at present in force are, firstly, to prevent, if possible, the landing on our shores of certain infectious diseases of cattle; secondly, detection and prevention of the spread of those existing, and by the employment of certain measures, to try and stamp out those already established.

"The Privy Council, who have the management of these Acts, have so far acknowledged us as to appoint one of our professors to be Veterinary Adviser.

"The inspectors at the various ports, with the powers to compel the slaughtering or quarantine of affected animals, are now being selected from our ranks after an examination; although the Acts do not, so far as I can ascertain, contain any clause as to the qualification such men are to possess,—and some little time ago, to my knowledge, men were holding these posts who were not members of the veterinary profession.

"The second object—the detection and prevention of the spread of diseases already existing—is perhaps the most difficult. We all know how, formerly, and even yet occasionally, directly a case of Pleuro-pneumonia appeared in a herd, to prevent individual loss and get rid of the thing, the unjust policy of selling all off and buying a fresh stock was resorted to—thus scattering the contagion broadcast over the country, each animal from the affected herd becoming a fresh source of infection.

"Besides the port inspector, each local authority, under the direction of the Privy Council, appoints an inspector for its own district; as a rule they are selected from the police force, the butchering business, and other callings possessing similar qualifications. That these are not the men best fitted for the work, any one who has come in contact with them in the discharge of their duty will readily admit. The injustice and hardship that many people have endured, as a consequence of the endowment of these incompetent men with power, may also be adduced as proof. Neither is the local general practitioner entirely to be trusted; for although the people receive a proportionate compensation for the loss of their animals, they will, if possible, in many cases try to sell them, irrespective of any care as to how they spread the disease; so that the inspector should be free from any pecuniary obligation, which the general practitioner is not when his own clients are concerned.

"The inspection of meat is in anything but a satisfactory state. Large quantities unfit for human food are disposed of weekly in the poorer districts of our towns. Even carcases from which it would be impossible to cut a piece weighing two pounds that would not reveal its real character, make minced meats, and appear on a board kept ostensibly for the sale of scraps.

"The fact that the Queen, in her speech at the opening of Parliament, promises to consider during the present session the law relating to the diseases of cattle, shows that the matter is in anything but a satisfactory state; and I would take this opportunity of again bringing forward what has been for some time ably advocated by our esteemed friend Mr. G. Fleming—that we ought, like many of our Continental neighbours, to have a Veterinary Sanitary Service, for the inspection not only of living animals, but the food derived from them and the places in which it is prepared, not forgetting those sinks of abomination and cruelty—the knackers' yards. A footnote in Mr. Fleming's 'Veterinary Sanitary Science and Police' (vol. ii., p. 557)—a book, by the way, I hope will be studied by a few members of the Privy Council and British House of Commons prior to their proceeding with further legislation—says:

"'In Switzerland and Bavaria, in some parts of Germany and France (particularly at Bordeaux), and in Belgium (at Brussels especially), this veterinary organization exists, and is of great public utility. It is very probable that in a few years it will be established throughout the Continent. In this country, as has been mentioned above, this important duty is generally entrusted to policemen, market clerks, and other such incompetent people.'

"The transmissibility of certain diseases from animals to man—such as Rabies, Trichinosis, Measles, and Glanders, all of which are better understood by the veterinarian than any one else—points to him as the one best fitted to detect their presence and preserve us from their ravages.

"A better illustration of the little knowledge possessed by medical men of the diseases of animals could not be found than what is known as the 'Eagley Milk-poisoning Cases,' in which between one and two hundred people suffered from Typhoid Fever, eighteen of whom died. The outbreak was attributed to lead poisoning from acid milk acting on the metal in the cans; but members of this Association showed the absurdity of the notion, and traced it to its real origin.

"The inspectors should be good pathological anatomists, and fair micro-

scopists. Knowing, as we do, the powerful forces at work which are invisible to the naked eye, and their presence generally only revealed when their deadly work is wrought, it remains to be seen, in the proposed changes of the law, if all or any of the defects noted will be dealt with, and whether the Government will acknowledge us as an enlightened and true profession. Should they not, it will force us to the conclusion that our profession has not yet won for itself the position it is entitled to. Presuming this to be the case, there is nothing in it that need discourage us. Time will ultimately place us in this desirable position.

"Leaving this subject, let us look briefly at what lies before us. The legal protection of our rights is still a vision of the future. Living in a country renowned for its freedom, does not imply that the liberty of a portion of its subjects shall be allowed to operate to the prejudice and detriment of another and superior section of the community. It might be said there ought to be no need of protection if the members of our profession are superior to the quacks,—the public will naturally look to us and discountenance the empiric. This holds good to a degree; but the extent of gullibility of the British public must be seen to be believed. Take a somewhat parallel case. Because the general public purchase a thing purporting to be genuine, which an expert knows to be a fraud, is it not the duty of the powers that be, directly they ascertain this fact, to legally protect both the honest tradesman and the public from the imposition? We are already convinced of the justice of our plea, and fully persuaded that we could convince any other impartial judge of the fairness of our claims. But, like many other desirable things, obstacles are in the way of their attainment. In this case it is the unanimous opinion of our leaders that *time* will remove the difficulties and opposition which it is not at present thought wise and desirable to interfere with. If our worthy President (Sir F. Fitzwygram) only identifies himself with the movement, we could not have a better guarantee for prompt and effectual effort being made in due season to protect the public from imposition and the profession from disgrace, brought upon it by men assuming our titles whose only right is their unbounded *assurance and lack of shame*. The preliminary examination of our students is not of the character to ensure intellectual ability at all equal to the scientific studies they have to enter upon, and ought not to be long left in its present state.

"It may be somewhat out of my province to speak now of the subjects calling for our consideration as an Association; but the Germ Theory, and the antiseptic treatment of wounds as advocated and practised by Prof. Lister, are of sufficient importance to warrant me in asking the members to note carefully any practical facts bearing upon either of these subjects, and bring them before our notice in due season. Mr. Greaves' paper at Liverpool was exceedingly interesting, and a very fitting introduction to a subject of such magnitude.

"In concluding my address, I am convinced of its deficiencies and my lack of ability for such an important post. However, if no great feats are achieved before the end of the year, we may be enabled to say, with Longfellow, that,—

> "'Standing on what too long we bore,
> With shoulders bent and downcast eyes,
> We may discern, unseen before,
> A path to higher destinies;
> Nor deem the irrevocable past
> As wholly wasted, wholly vain,
> If rising on its wrecks at last
> To something nobler we attain.'"

Mr. T. GREAVES said that, although it was not the custom to discuss the

inaugural address, still, as the President had invited discussion, he felt disposed to say a few words on one subject—viz., that which was known as the "Eagley milk-poisoning case." If he did so, his remarks would tend to show that when a surgeon, although a highly educated one, stepped out of the limit of his own profession, his opinion was found wrong, and would mislead those who listened to him. In respect to the Eagley milk-poisoning case, their friend Mr. Tom Taylor and he were requested, by the Chairman of the Local Board of that district, to see the cow whose milk was said to be unfit for human food. The senior surgeon to the Board had said that the poisoning had resulted from the milk given by one of the cows on a certain farm, and which cow had calved about six weeks before. They saw the cow, which was affected with a disease known as the "Whites," and in which there was a discharge from the vulva. It was said this was an unsound beast, and gave milk of such a character as to affect the milk cans in which it was placed, and the consequence was that people were poisoned. At the farm they met the senior surgeon, his son (who was also a surgeon), and a clerk to the Board. They examined the cattle, and found that the cow upon which the blame was laid was in a very healthy condition, excepting this slight discharge from the vulva; they considered the milk was not in a bad condition. The vulva was examined, and there was scarcely any discharge to be noticed. They came to the conclusion that the milk was fit for human food. The surgeon had given an erroneous impression to the public. He (Mr. Greaves) offered to drink the milk, but the surgeon said, "Stop, I warn you your life is in danger!" He (Mr. Greaves) took a mouthful of the milk and spat it out again. The cowman said, "I take a pint every day." The veterinary surgeon attending the cow also took a pint each day, to prove to the medical man that the milk from this cow, pure and simple, was not deleterious, and did not produce the disease in the district. He (Mr. Greaves) was satisfied that the surgeon, although a highly educated and nice gentleman, was entirely in error. They found several large tubs in the farmyard, filled with water from a small running stream. They followed up the source of this water, and on the banks of the brook found a quantity of refuse and excreta. Two or three days before the outbreak there had been heavy rains; and no doubt but that a quantity of this excrementitious matter had been washed into the water. They discovered that the water had been used in washing the milk cans, and it was very likely that some of the water was added to the milk. They were satisfied that the cause of the poisoning was in the water. They told the surgeon it was not the milk from the cow that caused the disease; and, as a proof, added, "If it is the milk from this cow, how is it that, although the cow has been giving milk six weeks, there has not been a poisoning case until a week ago?" The surgeon replied that the cow had never given any milk until then. Let them think of that assertion: a cow which had calved six weeks previously and had not given any milk! He (Mr. Greaves) could not have believed a medical man could have said such a thing; but the surgeon persisted in his statement, and they called the milkman, who said the cow had given over six quarts every day since she calved. They told the surgeon that something had been added to the milk, but did not say what it was; at the same time pointing to the water in the tubs: there was the poison, and if connection with the farm was not stopped there would be further danger. They advised the Chairman to stop the delivery of this milk, not because the milk was bad, but because there was something which had to do with it that was bad. The order was given, and from that moment there was no other case of illness. There were numbers who had partaken of the milk who were ill, but no fresh cases occurred; and we believe but for the prompt action they took that night, instead of there being only eighteen or twenty fatal cases, there might have been hundreds. If veterinary and

human medical officers would keep their proper places, it would, he was sure, be better for the community at large.

Mr. A. CHALLONER.—"Was the cow under treatment?"

Mr. T. GREAVES.—"I rather think it was under the care of a veterinary surgeon at Bolton."

The SECRETARY.—"Mr. Mollineux."

Prof. WILLIAMS said he was very glad indeed to hear that the discovery of the true cause of the disease at Eagley was due to the ability and observation of members of this Association. He read the papers very carefully when the outbreak occurred in this neighbourhood, but he must confess he had never yet discovered that the veterinary profession received any recognition for the discovery. He was under the impression that the discovery had been made by medical men, and that the veterinary profession had not been consulted in the matter. It showed that although a surgeon might not know that a cow gave milk shortly after it calved, and that although surgeons were liable to error, they were able to take the wind out of the sails of veterinary surgeons, and obtain the credit to themselves for the discovery of the cause of such an outbreak. He was glad the public would have an opportunity of becoming acquainted with the fact that credit was due to Mr. Tom Taylor and Mr. T. Greaves; and he trusted the public would give the profession that due reward which was theirs in a case of that kind. He could refer to the Contagious Diseases Act with rather peculiar feelings, because he was the first victim of the action of the law under that Act. As they would know, he lost a case in the Court of Session, in which he was pursued by a dairyman, for the value of two cows he ordered to be slaughtered when they were suffering from Pleuro-pneumonia. He was not going to enter into the merits of the case; he lost the case on a point of law which was laid down by a Scotch judge, and which, he had no doubt, would have considerable influence with inspectors who had taken upon themselves the ordering for the slaughter of animals suffering from contagious diseases. He proved at least that one of the animals was suffering from Pleuro-pneumonia. The cow was seen by four veterinary surgeons—three besides himself—all men qualified for the work; and they came to the conclusion that the cow was suffering from Pleuro-pneumonia. Two professors, however, said it was not Pleuro-pneumonia. The judge said that even if there had been no difference of opinion here as to the nature of the disease, still the defender is liable to pursuer for damages—which, however, under the circumstances, would only be nominal, and compensation could be claimed from the local authority. He had been informally and formally an inspector in Edinburgh for about eleven years: in 1869 he was formally appointed, and he believed he had given satisfaction. In 1873 the compulsory slaughtering clause came into operation, and they (inspectors) received authority from the local authority to cause all animals affected with Pleuro-pneumonia to be immediately slaughtered; they gave them power to put a valuation upon those cattle, and ordered the immediate slaughter. They had been repeatedly urged to see that that order was carried out, that all infected animals should be at once slaughtered in order to prevent the propagation of the disease. He thought that was a very wise act on the part of the local authority, the chairman of which was a lawyer of great repute, who was under the impression that the local authority had a right to do that; that the power remained with them, and that they need not be consulted by their officers on every individual case. But the judge ruled that the local authority had no right to delegate their powers to inspectors—that inspectors could do nothing more than make an inspection, and make a declaration first to the owner and afterwards to the local authority. They were to consider it, and inquire whether the disease was Pleuro-pneumonia. Thus it was that the local authority *only* had power to

grant orders for slaughter. He lost the case while acting upon advice of the local authority. He was glad to say that the matter did not affect him financially; still the case to him was not satisfactory, because he felt he had acted judiciously and honestly so far as his instructions went in that case. Now, however, as it had been announced in the Queen's speech that the law in that matter would be reconsidered, and that they were going to have a new Act of Parliament, it would be well for the advisers of the Privy Council to consider whether those powers should still remain in the hands of the local authority, or should be given to the inspectors. During the months of August and September, and in fact in the summer months, it would be a matter of impossibility to carry out the regulations as they existed. As they knew, many of the people in Edinburgh left town in the summer, and there was scarcely a man to be seen for months; so that the inspectors would not have any one to consult, and the Act would be virtually a dead letter. He thought, however, he had said enough to show that inspectors would have to be cautious, and that they had no right to act upon their authority which they received from the general local authority. He should like to know the opinion of the meeting on the various customs of carrying out the law; and there was a meeting to be held shortly in Edinburgh as to how the Act was being carried out, and as to what was the course of procedure in cases of Pleuro-pneumonia. He should be pleased to hear some remarks on the subject.

Mr. REYNOLDS, Liverpool, said that in some of the midland counties there was an inspector to order the slaughter of cattle, but it was the duty of the police to see the order carried out. It was undesirable, he thought, for a veterinary surgeon, if he were a general practitioner, to have in his power the ordering of the slaughter of cattle, because it was calculated to bring him into disrepute in his district, and he would thus be a sufferer. With regard to the local authority in Liverpool, the Contagious Diseases Act was almost a dead letter. The inspections under the Contagious Diseases Act were made by one of the medical officers of health, and carried out by men whose qualifications were those common to ordinary intelligent butchers. Very little had been done with regard to compulsory slaughtering of diseased animals.

Mr. ELAM, Liverpool, remarked that he was called to a case in which some cattle were to be slaughtered under the compulsory slaughtering clause. The inspector had stated that it was Pleuro-pneumonia, and would have the cattle killed, although he was told by a veterinary surgeon that the disease was a case of "Tuberculosis." He (Mr. Elam) saw the cattle, and a more marked case of "Tuberculosis" could not exist. Mr. Reynolds said he saw the cattle which were seized by the inspector (who was formerly a butcher), and it was a clearly-marked case of "Tuberculosis," with not a trace of Pleuro-pneumonia about it.

Mr. MOORE, port inspector, Liverpool, said he could give an illustration of the way in which matters were conducted in Liverpool. Not long ago he had to call the attention of the town clerk to two pigs, just arrived from Ireland, suffering from Foot-and-mouth Disease. It appeared that his notification (which was a telegram) was put into the hands of an inspector of nuisances, who had to come down and inspect the animal. He made it out that the case was one of sore toes, but as soon as it was hinted that it was Foot-and-mouth Disease, they were taken away in a cart and destroyed. As regards Professor Williams' request concerning the custom of the profession in various parts of the country, he might say that the magistrates in Quarter Sessions were constituted a local authority, and where a county was extensive, they appointed sub-committees for each district, so that some of the members would be on the spot when wanted. Each district had its own

inspector. The proposition for inspectors to have the power to order the slaughter of animals was open to grave objections, and particularly so as regards the compensation clause. The usual way, he thought, was to issue a note to the effect that the animal was suffering from an infectious disease, and forward it to the local authority, who had power to send some one to value the animal. The safest way was to have the animal properly valued, because, if there was a dispute over a cow which had suffered from Pleuro-pneumonia, and which had been buried with quicklime, etc., things might crop up which would be very unpleasant to an inspector: for instance, an inspector might state that the cow was worth £15, and a claim might be put in for £20; there ought to be some one to value the cow. At the same time, there ought to be some means devised, so that immediate steps could be taken without having to wait for the local authority, which might not be near.

Mr. HILL, of Wolverhampton, said that in his district every veterinary inspector had to express an opinion as to the nature of the disease, whether it was Pleuro-pneumonia, or Glanders, or anything else; the person appointed by the corporation gave the order for the destruction, and then the veterinary surgeon made a *post-mortem* examination. He mentioned a case in which a cow was slaughtered, and afterwards the surgeon found a piece of wire protruding into the diaphragm, which no doubt had been there a long time, as there was no inflammation. This person, on finding the wire, said he (the speaker) had erred in his opinion, and he was told he would have to pay for the cow. The lungs were taken to another veterinary surgeon, who confirmed his opinion; but the gentleman he had mentioned would not give way, and the end of it was that he had to pay £25 as damages for the cow which belonged to the corporation. In the borough with which he was connected, they expressed an opinion as to the state of the animals, and had no liability excepting having given that opinion. He never gave an order to destroy.

Mr. A. CHALLONER, Bolton, said that when he found an animal suffering from Pleuro-pneumonia, he granted a certificate to that effect, and the police shot the diseased animal, and afterwards made a *post-mortem* examination. Previous to the slaughter of an animal, two respectable farmers were called in to value the cow. The magistrates would not have the beast destroyed until he had sent his declaration.

Mr. W. G. SCHOFIELD, Pontefract, said in his district the superintendent visited the farm or place where cattle were unwell, and he then called him (the speaker) in, and he gave a certificate. If the case was one of Pleuro-pneumonia, two valuers were called in, one from the township in which the case occurred and another from an adjoining township. The superintendent received the order in general terms, he believed, from Wakefield.

Professor WILLIAMS.—"He acted illegally."

Mr. THOMAS TAYLOR said the line laid down in the county of Lancashire was simple. When a cow was reported ill, the policeman in the depôt nearest the farm was sent for, and he reported at once the case to his superintendent (Mr. Superintendent Bent), who would send Mr. Taylor a note, asking him to go and examine the cow in question: if a case of Pleuro-pneumonia, he gave a certificate to that effect, and that certificate was placed before any magistrate residing within the county, and he gave the order for the immediate slaughtering of the animal. In many cases a *post-mortem* examination was made. Many alterations had been made by the Privy Council in their instructions. In some instances no *post-mortem* was to be made; the animal was to be buried without any opening in the skin, except slashing through the skin to destroy it. Other instructions were, that there should be a *post-mortem*. However, he was paid for every journey he made, whether for examination or *post-mortem*. He considered a professional man's time was such as ought to be paid for. He was convinced that Mr. Superinten-

dent Bent managed the portion of his duties relating to cattle disease with great efficiency. He (Mr. Taylor) had never had any trouble with him, and he did not think he had had one awkward case since the compulsory clause came into operation. It was always compulsory, before the destruction of an animal, that the magistrate's order should be obtained. The animals were valued by two farmers, and compensation was paid on the usual scale.

Mr. J. ROWE, London, said their Medical Society met on the previous day, and Mr. Shore, of Hackney, submitted a circular from the Board of Works, as to whether cattle which had been inoculated for Pleuro-pneumonia, and then died, could be justly claimed for. Seeing that a Board like that of London had taken the matter up, it might uncomfortably present itself to the notice of members of this Society.

Mr. PETER TAYLOR said he had listened with much pleasure to the President's addiess. It had gone over much valuable ground. First the President had alluded to the "Contagious Diseases Act;" secondly, to appointments of inspectors, and to the appointment to such office of policemen and butchers; thirdly, he had dealt with the examination of the pupils; and fourthly, he had gone into appointments to various positions. There was no doubt as regards the milk-poisoning to which their friend Mr. Greaves had referred: they had it before them on their last annual meeting. He thought it was the duty of veterinary surgeons, although they might differ from the members of the ordinary profession, to show a large amount of charity. Veterinary surgeons, even to the present day, were indebted in a great measure for the amount of knowledge they possessed to the medical profession. He had attended five classes at the School of Medicine when with the late Professor Dick; and he felt, to this day, that he had learned as much from the medical profession as he had from his own veterinary professors. He did think they as a profession should not be hard upon them, even if they had been misled in a case of secretion of milk in one particular cow, and as to whether an epidemic had sprung from deleterious water. Regarding the inspection of meat, it was an extensive subject: even veterinary surgeons, if they were elected as inspectors, would in his opinion want a great amount of practical knowledge, which few, even at the present day, had in a broad degree. It was, he thought, very difficult and doubtful to come to an accurate opinion as regards the sound character of meat, without seeing the living animal. They might see its structure when dead; but it might be altered by extraneous matter, in colour, character, and density. In respect to the duty of Government to elect veterinary surgeons, there might for some time still continue to be a want of recognition by the Government; but he always found, in his own practice, that if they wanted to raise their profession and obtain a position for themselves, the work must be done by their own diligent efforts. It would be some time, he thought, before they would be put in their proper position by the Government. With regard to the examination of the veterinary student, he felt that it was quite sufficient, even at the present period, for the pupils who presented themselves. He considered the course a very good test, and it was a test which qualified to rank even in the medical profession. In the examination a man was rejected if he came below the standard, and there was no favour shown. And now with reference to the Penal Act. He could say a great deal on that point, and he believed there was no man present who desired the Act more than he did. With regard to an Act to protect their science and their position as veterinary surgeons, he was of opinion some length of time would elapse before such an Act was obtained. There were two or three reasons why he formed that opinion. In the Scotch colleges they had examiners and diplomas of their own. Lately they had heard much of their legislature regarding the sanction of titles which had been called, he considered not justly, "spurious"

titles. If a man studied at a Scotch College appointed by the Highland and Agricultural Society, and received a diploma, he did not think that was a spurious title. If the Royal College of Veterinary Surgeons did not, as they did not at the present time, accept the diploma on the same ground, they would never obtain a penal clause—until they got the Highland and Agricultural Society amalgamated with the Royal College. If they were to ask the House of Commons to grant a Penal Act to protect their rights, they would not grant anything restrictive, for they would have all the weight of the Scotch noblemen against them, because they were treating their Scotch students as empirics. Now, to obtain such a clause would cost, if the measure was unopposed, at least £250; but if opposed, would cost some £2000 or £5000, or perhaps £10,000: and where was the money to come from? Many remarks had been made on the subject, and people had said they ought to get such an Act. The members of Council were not immaculate; they endeavoured, to the best of their ability, faithfully to do their duty for the benefit of members at large. Only show them how to get the Act, and they would obtain it to-morrow for the whole of the profession. He, however, feared they would never be successful until they amalgamated with the Highland Society. He was in favour of election by ballot (of Council Members). It was a step in the right direction, and he had no doubt it had been carried out by the very able and intelligent Chairman of the Council. There was no man with greater ability, or who had the cause more at heart, and was more in favour of progress, than Sir F. Fitzwygram. If they had had a few more men like him, they would have made greater and more rapid strides in the advancement of their calling. Moreover, as to the appointment of veterinary surgeons by the legislature, that would, he thought, depend in a great measure upon the veterinary surgeons themselves. They must work and keep ahead of the day, and show the public that they have not only the ability, but also the science at heart; and they must prove that they know how to fulfil their duties with credit, not only to themselves and their profession, but to the country at large. At the last Council meeting they had a great discussion on the proposition of the President to suspend Bye-laws 32 and 33, with the object of admitting gentlemen holding the Highland Society's certificate by one examination to obtain the diploma of the Royal College. This was to be brought forward again at the next Council meeting; and he should, as representing their interests, like to know what was their private opinion on the subject. Were the great bulk of that Society to come in in this way, he thought unquestionably they would not be doing justice to their own students; and he certainly spoke with great warmth, because he considered the Council should in the first instance make overtures to the Scotch Society, for the purpose of seeing if the two Societies could not amalgamate and have one examination and one diploma, and then he would say to these men, "You give no diploma, give it to us to do that, and we will admit all your members and pay no respect to persons." With *no* examination,—for they had a preliminary examination, served their sessions at college, passed a severe examination, and obtained a diploma from the Highland and Agricultural Society. He could not see that the suspending of the bye-laws would do any good until they got the whole of the veterinary profession in one society. What they wanted was a united and appreciated profession.

THE CHAIRMAN said that, with regard to the introduction of the Eagley milk-poisoning case, he brought it forward without having in the least an unfriendly or unkindly feeling towards the medical profession. It was quite the reverse: he wanted to bring the case forward as one in which they had come into their (veterinary surgeons') province; for he thought veterinary surgeons could not do medical men's work, neither could medical men do

theirs. He felt very kindly towards medical men, and admitted that they owed much to them, and he wished to look towards them in no spirit of unfriendliness. With regard to the appointment of inspectors, they seemed to have to some extent lost sight, in the discussion, of the fact that many of those calling themselves veterinary inspectors were not inspectors at all, but policemen—who were doing the work, and who simply asked for the opinion of the veterinary surgeon. He believed these men in some cases had the power to kill cattle without asking for a veterinary surgeon's opinion. The Privy Council gave instructions, and their instructions were based on Act of Parliament; and he found that really the local authorities had power to appoint the police, and the police, to shield themselves from blame, called in a veterinary surgeon, but were not bound to do so. That state of affairs, and other points bearing on the subject, ought to go before the notice of the authorities who were going to give them a new Act of Parliament. Then, as to the suspension of bye-laws, personally he thought it would be wrong to suspend them, unless the Highland Society discontinued the granting of their diploma; and if so, then they might make the alteration. It was said the Highland and Agricultural Society had a right to grant the diplomas; but he did not agree with that assertion, for he did not think any agricultural society had a right to grant such a certificate. The practice had grown into a custom, but he thought it was not right. If they could elicit the opinion of the meeting, it perhaps would be a help to their representative Mr. Taylor; and if any one would propose a motion, he would endeavour to get an opinion as to whether the bye-laws should be suspended or not.

Mr. P. TAYLOR said he would suggest a motion to the effect, whether it was their opinion the bye-laws should be suspended or not, or, on the other hand, whether they would rather not suspend the bye-laws until they made application to the Highland Society to forego granting diplomas, and give them the promise to admit them all.

Mr. T. TAYLOR thought it was the duty of the Liverpool deputation which was appointed to say what answer they received from the Scotch Society with respect to the non-granting of their diplomas. Might he ask if the Society had yet been asked for a reply? Until they were asked about the matter they could not give an answer.

Mr. REYNOLDS said that Sir F. Fitzwygram and Professor Williams were appointed by a committee to communicate with the Highland Society, but he did not know what steps had been taken. He had had a letter from Mr. Blakeway, in which he stated he was not able to give an answer, nor did he know any one who was.

Mr. T. TAYLOR said it was undoubtedly carried unanimously that there should be a move in the matter, and he waited the answer of the Scotch Society. He supposed they had not been applied to; still he thought it was the duty of the committee to have attended to the matter.

The CHAIRMAN said he should be glad to take a motion.

Mr. T. TAYLOR moved, "That this meeting is of opinion that the Council ought not to suspend the bye-laws until they have communicated with the Highland and Agricultural Society of Scotland as to the discontinuing of granting their diplomas."

Mr. A. CHALLONER seconded the motion, which was put to the meeting and carried unanimously.

The proceedings then closed. Afterwards the members and friends dined together.

SAM. LOCKE, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner were held at the Queen's Hotel, Leeds, on Friday, January 25th, 1878 ; the President, Mr. Fallding, in the chair.

The following members were present :—Messrs. T. Greaves, J. S. Carter, James Freeman, Joseph Freeman, Peter Walker, W. G. Schofield, John Cuthbert, J. W. Anderton, D. Spilman, R. W. Murdoch, J. H. Ferguson, J. Atcherley, W. Lodge, J. E. Scriven, George Carter, J. M. Axe, and W. Broughton, the Secretary.

Messrs. W. A. Taylor, Manchester ; Robertson, Leeds ; and Hollins, Pontefract, were present as visitors.

Apologies for non-attendance were received from Prof. Williams, Messrs. E. C. Dray, James Ball, John Freeman, M. E. Naylor, John Schofield, D. R. Sowerby, Charles Secker, J. L. Faulkner, Parlan Walker, and T. Pratt.

The minutes of the last meeting were read and confirmed.

The PRESIDENT then delivered the inaugural address, in which he referred principally to the practical education of the veterinary student ; the fees and charges for examining horses as to soundness ; and other matters of veterinary policy.

Mr. GREAVES alluded to the late examination of students for the diploma, when a great many were rejected for want of practical information. He was quite sure that this deficiency could not be remedied unless the students obtained practical information before going to the veterinary schools.

Mr. ANDERTON said that a person intending purchasing an expensive watch or piano would pay one or two guineas to obtain a practical opinion respecting the same ; whereas a veterinary surgeon would give his opinion as to the soundness of a horse at the small charge of ten shillings and sixpence : he thought that the examination fee ought to be one guinea.

Mr. FREEMAN also thought that the fee of ten shillings and sixpence was too little.

Mr. W. A. TAYLOR was quite sure that veterinary surgeons would not form themselves into a trades-union, and he thought it impossible to obtain uniform fees.

Mr. JOSEPH FREEMAN related the fact of several sheep dying in one flock in a few days, after being washed with McDougall's lotion. The symptoms were those of general Fever accompanied with Diarrhœa. The only noteworthy appearance revealed in the *post-mortem* examination was the presence of large quantities of sand in the reticulum, the presence of which had not yet been satisfactorily accounted for.

Mr. GEORGE CARTER related an outbreak of malignant Anthracoid disease, whereby a horse, a cow, and three or four pigs were all affected, and died in a few hours after showing symptoms of the malady.

The next meeting of this Society will be held in April, when Mr. Greaves' paper on "Germs" will be read and discussed.

ONTARIO VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the Ontario Veterinary Medical Association was held on December 21st, in the Ontario Veterinary College, Temperance Street, Toronto. The profession was well represented by a large attendance of members from all parts of the Province, as well as some from the United States.

Professor SMITH, the President, opened the meeting with an interesting address, in which he congratulated the members on the increasing interest taken in the Association, and also the continuous improvement in the standing of the profession, and its appreciation by the public, contrasting

favourably its position now with what it was in this country ten or fifteen years ago.

The election of officers for the ensuing year was then proceeded with, as follows :—Professor Smith, President; Mr. Wilson, V.S., London, first Vice-President; Mr. Duncan, V.S., Goderich, second Vice-President; Mr. Cowan, V.S., Galt, Treasurer; Mr. Sweetapple, V.S., Brooklyn, Secretary. Directors —Messrs. C. Elliott, V.S., St. Catharine's; J. S. Cæsar, V.S., Port Hope; A. O. F. Colman, V.S., Ottawa; Grange, V.S., Guelph; Sanderson, V.S., Richmond Hill; Burns, V.S., King; Harrison, V.S., Milton; Bond, V.S., Toronto.

A number of new members were then admitted, after which several discussions took place on matters relating to the profession. A sum of money was voted by the Association to procure medals to be awarded to the students of the Ontario Veterinary College at their examination in April. Several interesting professional cases and surgical operations were discussed, most of the gentlemen present taking part in the discussion. The Association then adjourned, to meet again in Toronto during the time of the Provincial Exhibition.

Mr. G. E. McEvers and Mr. R. M. Somerville, of Buffalo, were awarded their diplomas.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE opening of this Association took place on January 3rd; there was a full attendance of members, and a number of visitors. Professor WM. OSLER occupied the chair.

After the usual routine business, GEORGE PARKISON, Bridgeport, Conn., was called upon to read his communication on a case of Tetanus, with special reference to accurate clinical notes of the pulse, respirations and temperature, carefully noted and systematically arranged; for which he was highly complimented by the Chairman and others present.

Professor MCEACHRAN was next called upon to read a paper on "Soundness, and the Law of Warranty," in which he explained the different definitions of soundness and unsoundness. While admitting the correctness of the usual rendering of the term,—"an animal eventually free from any alteration in structure or functions,"—he inclined to the more practical view of soundness given by Oliphant, that "when a horse is free from hereditary disease, is in possession of his natural and constitutional health, and has as much bodily perfection as is consistent with his natural formation," a veterinary surgeon may safely certify him to be sound. He considered that whatever alteration in structure or functions so affects the animal as to interfere with his usefulness, or reduces his value, renders him unsound. According to Lord Ellenborough, "Any infirmity which renders a horse less fit for use or convenience is an unsoundness." Percivall says: "A horse which has that about him which is likely, on work, to render him lame, is unsound." After carefully describing the law, as laid down by the best English authorities, as to soundness, he took up the law of warranty. "By the civil law of England, a person is bound to warrant the thing that he sells or conveys, although there is no express warranty; but the common law binds him not, unless there be a warranty, either in deed or in law,—for *caveat emptor*, the meaning of which is that the buyer takes the article sold with all its defects, and must not look to the law for redress if its intrinsic worth do not correspond with its outward appearance" (*Stuart*). "There must be either an express warranty of soundness, or fraud in the seller, to maintain an action" (*Oliphant*). In France, and in this Province, a legal warranty

attaches upon the seller, for the protection of the purchaser, against "latent defects and diseases," which are presumed to be within the knowledge of the horsedealer. C. C. 1522 says: "The seller is bound by law to warrant the buyer against such latent defects in the thing sold, and its accessories, as to render it unfit for the use for which it was intended, or so diminish its usefulness that the buyer would not have bought it, or would not have given so large a price if he had known them." C. C. 1523: "The seller is not bound for defects which are apparent, and which the buyer might have known himself." C. C. 1424: "The seller is bound for latent defects, even when they are known to him, unless it is stipulated that he shall not be obliged to any warranty." According to Deglan (action Rédhibetoire), the time allowed by the French law to bring an action to return a horse for specific Ophthalmia and Epilepsy is thirty days, and nine days for all other diseases which constitute unsoundness under their laws. Our own common law establishes no certain number of days within which an action has to be taken. C. C. 1530 says: "The redhibitory action resulting from obligation of warranty against latent defects must be brought within reasonable diligence, according to the nature of the defect and the usage of the place where the sale was made,"—thus leaving to the judge to determine whether or not the plaintiff has acted in the matter with due diligence. The different diseases which constitute unsoundness were noticed in detail, and the reasons why they constitute unsoundness explained. A few remarks were made on horse-dealing and the "tricks of the trade," of which, as stated by Professor Gamgee, it was a mistake to suppose that all the sharp practice was on one side. It was a wonderful fact, but yet it was a fact, that the horse, next to man about the noblest object in creation, appeared to have a tendency to corrupt all those who deal in him.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At the monthly council meeting held on February 6th, the Hon. W. Egerton, M.P. (chairman), reported that he had been elected chairman for the current year. Mr. Harpley had presented to the Committee a report of the examiners at the recent examination of students from the Royal Veterinary College, in which it was stated that originally there were seven candidates, but three failed to come up on account of impaired health. The report showed that the technical part of the examination was not so satisfactory as could be wished. A letter had also been read from the President of the Royal College of Veterinary Surgeons, drawing special attention to the above, and expressing his opinion that the term or period of study was formerly too short, but that this is now remedied. The Committee recommended that a copy of the report and letter be sent to the Governors of the Royal Veterinary College. Dr. Burdon Sanderson had recommended that the cattle hitherto experimented upon for Pleuro-pneumonia be kept for other experiments, and that fresh ones be procured for further experiments in Pleuro-pneumonia; that it is desirable that the improved method of inoculation for Pleuro-pneumonia should, with reference to its preventive efficacy, be tried on a larger scale than had hitherto been possible in districts in which disease actually prevailed, and that with this view owners of stock should be requested to co-operate with the Committee by allowing their uninfected animals to be inoculated—it being understood that compensation would be made by the Society for any losses arising directly from the inoculation.

This report was adopted.

Parliamentary Intelligence.

HOUSE OF LORDS.

Hydrophobia.

January 31st.

In the House of Lords, in answer to a question of Lord C. Hamilton, the Chancellor of the Exchequer said that the Government were considering the subject of Hydrophobia, with a view to legislation.

The Cattle Diseases Bill.

February 12th.

The Duke of Richmond and Gordon called attention to the report of the Select Committee of the House of Commons on Cattle Plague and importation of live stock; and to present a Bill to amend the Contagious Diseases (Animals) Act, 1869. He said: "Notwithstanding the gravity of the affairs at present being transacted in south-eastern Europe, I need offer no apology for calling attention to the subject embraced in the notice I have placed upon the paper. The interests of all classes are involved in this subject. My opinion is that there should be no distinction drawn between the interests of the producers on the one hand, and the interests of the consumers on the other. Their interests are identical; and it would, I think, be quite indefensible to attempt to set up class against class in connection with so important a subject. It will be necessary for me, before explaining the proposed Bill, to refer briefly to the past. Between 1865 and 1867 our flocks and herds were decimated by Cattle Plague. A Royal Commission was appointed, and in the year 1866 two Cattle Plague Bills were passed. The result has been that since 1872 no animals have been allowed to come into this country from Russia, and since the outbreak of last year some restrictions have been placed on Germany and Belgium. One of the great difficulties, however, resulting from this legislation, is the total want of uniformity in the rules prescribed by the local authorities. The defects arising from this cause I hope will be remedied by the Bill. In the year 1873 a Committee was appointed to inquire into the working of the Act of 1869. That Committee made many recommendations, and the Government Bill will be based on them; but there are certain of those recommendations which we have not seen it fit to follow. The Act of 1869 has been in many respects improved by Privy Council Orders, but it needs greater development. Up till the year 1877 we did not think that special legislation was necessary beyond what existed; but in that year there occurred an outbreak of Cattle Plague. Very strong representations on the subject were made to the Privy Council from various quarters. The Council did what it could with the existing powers; but it became perfectly clear that the local authorities had not sufficient power to stop the disease, and that further powers were necessary. Whilst the disease was in progress numerous memorials were presented to the Privy Council from various bodies, and we were very much urged to exclude all foreign animals. I was not prepared at that time to accede to that proposal without further inquiry and further information. I am not quite sure that I had not power to act in that manner. It was possible that I had; but I thought it better not to act strictly upon the letter of the Act of 1867, but upon its spirit. At that time a new feature arose in this matter, and that was the importation of dead meat from America. We did not possess sufficient information on that subject, and the Government considered it desirable that a Committee

should be appointed ; and a Committee of the other House was accordingly appointed, consisting of persons representing various interests in the country. The subject was fully considered by that Committee. I wish now to draw a distinction between the Cattle Plague and other cattle diseases. I will first deal with the Cattle Plague or Rinderpest, as distinguished from the Foot-and-mouth Disease, Pneumonia, and other diseases. With regard to the Cattle Plague, I had made up my mind that it was a matter that ought to be dealt with by a central authority ; the Committee came to the same conclusion, and I have embodied all their recommendations in the Bill with regard to the Cattle Plague. With regard to the other diseases which I have mentioned, there are three things to be considered. First of all, do these diseases so much injure the community as to make it worth while to stamp them out? Secondly, whether there is a reasonable prospect of so doing? And thirdly, what is the restriction necessary for that purpose? It was proved that Pneumonia and the Foot-and-mouth Disease are far more injurious to the country than even the Cattle Plague. And for this reason : the Cattle Plague is not of frequent occurrence, whilst the other diseases are very prevalent. I do not want to weary the House with too much evidence, but I think it desirable to refer to some portions of it which induced me to come to the conclusion at which I have arrived. Mr. Booth, one of the greatest breeders, said he had experienced very great loss from the Foot-and-mouth Disease,—between 1869 and 1872 his herd had been reduced by more than one-half,—and that breeding animals are specially liable to that disease. Mr. Jacob Wilson, looking at the matter in the consumer's point of view, said the disease not only enormously reduced the amount of food, but affected the breed of the animals. Mr. Howard, formerly a member of the other House, stated that the loss to the county which he represented had amounted to £60,000 ; that the supply of meat to the consumer had been greatly diminished ; and that there had been a great diminution in the number of cattle kept. This testimony shows that these diseases not only caused a considerable loss to the owners of stock, but materially affected the consumers of food. Your Lordships will recollect that Mr. Wilson stated that it took him twice as long to fatten a given number of bullocks in consequence of the disease. I think I have shown that the injury done by this disease makes it worth our while to attempt to stamp it out. I then come to the second point—whether there is a reasonable prospect of success. Fortunately, in this matter I can be guided by the experience of what has taken place in the past year. I find, also, that from 1865 to 1867, when the Cattle Plague restrictions were in force, the country was never so free from disease ; that was proved before the Committee. Again, in the Cattle Plague of last spring, had it not been for the restrictions, the Plague would have been at its height during the summer months ; but the result showed that from March to November there was not a single case of Foot-and-mouth Disease in the Metropolitan markets. I think that is sufficient to show that under certain restrictions these diseases can be stamped out ; and it now becomes my duty to point out these restrictions. First of all, then, in regard to the home restrictions which are necessary. I think there is no question that if we could stop the movement of stock throughout the country for twelve months disease might be stamped out ; but I am perfectly aware that the inconvenience which would arise from such a measure as that would be so great that it could not be carried out, and therefore I do not propose to ask your Lordships to adopt it. I believe it will be quite sufficient to deal with these diseases in the districts where they break out ; but in these districts I am quite in favour of the most stringent regulations being carried out. On that point I am prepared to ask your Lordships to adopt the recommendations of the Committee. I am

quite aware that these restrictions will press very heavily on the agriculturist at home, and I have no doubt that the farmers will be very sorely tried in regard to them. At the same time, I feel that they will submit to these restrictions if they feel it would be for the good of the community; indeed, they said so in the evidence which they gave before the Committee. It is obvious that it would be perfectly useless—indeed, I do not think it would be fair—to impose these restrictions upon the home producers, unless every means were to be taken for preventing the introduction of disease from abroad. It is perfectly evident that so long as disease can come from abroad, so long is it useless to put the farmers under the restrictions I have mentioned. I do not think any one will be found to dispute that we are subject to disease coming from foreign countries. In the year 1876 the veterinary inspectors of the Privy Council reported that 11,662 head of cattle imported from foreign countries were found to be diseased; and that the countries they came from were Germany, Belgium, Holland, France, Portugal, and Spain. The total number imported was 1,317,006; and it is obvious that out of so large a number as this the most careful and exact system of inspection will fail, and that diseased animals will escape the attention of the most experienced eye. It would of course be the most logical course to say that nothing but dead meat shall be imported. and that would no doubt also be the safer course; but I do not think we have as yet sufficient experience in the importation of dead meat to warrant us in recommending that so great a change should take place. We, however, think it is absolutely necessary, for the purpose of getting rid of Foot-and-mouth Disease, that all foreign cattle should be slaughtered at the port of landing. Provision for that purpose has consequently been inserted in the Bill. The quantity of foreign cattle imported into this country is not so very large. The total number of animals in the United Kingdom in 1876 was 38,179,325; and the total number imported from abroad at the same time was 1,357,856, or about $\frac{1}{37}$th of the whole stock in this country. It is a remarkable fact that we imported a larger number from Ireland than from abroad, because from Ireland the number was 1,866,452; so that we really are not dependent upon the foreign supply. There are two points which I ought not to pass by, —namely, the effect of these restrictions upon the supply of the country, and their effect upon the price. In 1877, whilst there was a loss in live cattle in this country less than in 1876, to the extent of 353,298 cwt., there was, during the same time, an increase of dead meat—509,927 cwt.—showing that the trade accommodated itself to the ordinary state of circumstances, and the consumer was not worse off. The total weight of meat carried by the Great Northern Railway from all places, in 1876, I find, was 18,118 tons; in 1877, 21,236 tons, or an increase of about 3118, which represents on an average about 60,000 bullocks. There can be no alarm felt that the restrictions would have any effect whatever upon the supply to towns. With regard to price, in the metropolitan markets I find that in eleven months of the year 1876 the average price of meat per stone was 5*s.* 1*d.* for beef, and 5*s.* 10½*d.* for mutton; and in 1877, 5*s.* 2*d.* for beef, and 6*s.* 2*d.* for mutton; so that there was a very slight difference in the price between those two years, notwithstanding that more restrictions were in force in the one year than in the other. The Select Committee of the other House, having carefully considered the evidence brought before them, came to the conclusion that compulsory slaughter at the port of landing would not be likely to discourage foreign importation, or, by diminishing the supply to our large towns, raise the price of meat. We propose in this Bill to act upon the recommendations of that Committee. As to the operation of the measure in regard to Ireland, the Committee recommend that the restrictions applicable to Great Britain should be extended to Ireland, or else that the ports in Great Britain shall be specified by the Privy

Council at which importation from Ireland shall be lawful, and that animals shall not be permitted to be taken inland unless passed by the Privy Council inspector at the port of debarkation. I cannot concur in that alternative recommendation. The object of the Government is to deal with Ireland exactly as it deals with Scotland and England. It is also proposed to consolidate in one Bill the eight existing Acts of Parliament relating to Cattle Plague in Ireland, and the two which apply to England and Scotland. The whole of the powers relating to the points I have mentioned are vested in the Privy Council, and the compensation is to be paid out of the Imperial funds. With regard to the second part of the Bill relating to Pleuro-pneumonia and Foot-and-mouth Disease, animals are to be kept isolated for fifty-six days in the case of the former, and twenty-six in the case of the development of the latter disease. Prohibited districts will be proclaimed, and no healthy cattle allowed to enter them. Regulations will also be inserted in the schedules to ensure the safety from contagion of animals exposed in markets. One important point not dealt with before is included in the Bill. We desire that greater security should be afforded for the proper supply of milk. Provisions are therefore inserted for the better regulation of dairies, and the conduct of those who are connected with that trade. Then comes the question of dealing with foreign animals. We do not intend to carry out the Committee's recommendation that no animals should be allowed to come from Russia. But powers will be given to slaughter cattle at the port of landing, and there will also be a power of quarantine. The Channel Islands and the Isle of Man are excepted. Our three objects in bringing in this Bill have been to consolidate the law, to ensure uniformity in its operation, and to extinguish disease.

The Marquis of RIPON abstained at that stage from criticising the details of the scheme. He would reserve his remarks till he had considered the Government proposals attentively. Their Lordships should bear in mind that the most restrictive portions of the Bill were intended to deal, not with the Cattle Plague, but with the other diseases to which the noble Duke had alluded. These restrictions would bear very heavily on the agricultural interests of the country. Whatever might have been the true origin of these diseases, it was agreed upon all hands that they had obtained such a hold upon the country, that any regulations that might be made with regard to foreign countries would not be sufficient to put them down. When the Bill came before their Lordships in committee, it would be necessary to consider not only the interests of the agriculturists, but of the consumers, and whether the restrictions proposed were consistent with an adequate supply of meat for the latter. He trusted that his noble friend would not fix too early a day for the second reading of the Bill.

The Duke of RICHMOND and GORDON said he proposed to fix it for this day three weeks.

The Duke of SOMERSET observed that although this Bill might be a protection against disease, it was not a protection against competition. He thought by judicious and proper regulations the disease might be stamped out.

Lord DUNSANY said it would be felt as a great relief in Ireland that the noble Duke did not propose to adopt the suggestions of the Committee with regard to that country.

The Earl of KIMBERLEY asked if any distinction would be drawn between store and fat cattle as regards the necessity for slaughtering at the port of landing, and whether it was intended that the restrictions should extend to cattle imported from America.

The Duke of RICHMOND and GORDON said no distinction could be drawn between store and fat cattle : all must be slaughtered at the port of landing.

It was also the intention to treat America in the same way as any other foreign country.

The Marquis of HUNTLY wished to know whether in Scotland the Act would supersede the action of the local authorities? In regard to Foot-and-mouth Disease, he did not think it was possible to stamp it out.

The Duke of RICHMOND and GORDON said it was intended to treat the local authorities in Scotland in precisely the same manner as the local authorities in England, so far as Cattle Plague regulations were concerned.

The Bill was then read a first time.

Jurisprudence.

RESPONSIBILITY OF VETERINARY INSPECTORS.

IN the Court of Session at Edinburgh, on January 24th, before Lord Rutherfurd Clark and a jury, an interesting action was tried—the first of its kind, we believe—craving £40 as damages against an inspector under the Contagious Diseases (Animals) Act; the proceedings being based upon a breach of the statutory regulations by the official, who had ordered the slaughter of two cows, which, supposing them to have been diseased, could only properly be slaughtered at the order of the local authority.

The pursuer was James Smith, formerly dairyman, Liberton House, Liberton, now residing at Causewayside, Edinburgh; and the defender William Williams, Principal of the New Edinburgh Veterinary College, one of the inspectors under the Contagious Diseases (Animals) Act, 1869.

The Dean of Faculty and Mr. Black appeared for the pursuer, and the Solicitor-General and Mr. Makgill for the defender.

A good deal of evidence was led, some of it of a conflicting nature, to the effect that in May last the defender ordered the slaughter of two cows which were alleged to have been suffering from Pleuro-pneumonia. The defence maintained that both animals were diseased—one having suffered from Pleuro-pneumonia three months before, the other ill with Congestion of the Lungs, if not both suffering from Pleuro-pneumonia. On the other hand, the pursuer's case was that both animals were not suffering from Pleuro; and in support of this there was the testimony of Principals Walley and M'Call, and Mr. Robertson of Kelso, who had examined the lungs of both animals, and found one healthy, the other the subject of old tubercle; though the symptoms in the live animals might readily have been mistaken for those of Pleuro. After a lapse of seven months, a number of veterinary men had been shown a preserved piece of the rib and pleura of one of the dead cows, and they had no hesitation in saying that the animal had suffered from Pleuro. Other evidence was called by the defence, disputing Smith's right of ownership, since he had been largely assisted by a brother-in-law; also endeavouring to show that the animals were absolutely worthless; that it mattered little to the proprietor by whose order the cattle were slaughtered; and that the pursuer had actually in the first instance made application to Professor Williams with the express object of getting the cattle removed to the slaughterhouse,—so that in point of fact the animals were not removed against the will of the pursuer. About this latter contention, and also regarding other points, the evidence was somewhat contradictory.

After hearing evidence and counsel on both sides, Lord Rutherfurd Clark, in directing the jury, said the first question necessarily was whether the cows which were slaughtered did in point of fact belong to the pursuer. Of course, if they were of opinion that the cows did not belong to the pursuer, he could

not obtain a verdict. Assuming that they did belong to the pursuer, the complaint was that they were wrongfully slaughtered by the defender or his order. The wrong was said to consist in the defender having ordered them to be sent to the slaughterhouse to be there slaughtered because they were affected with a disease called Pleuro-pneumonia. On the other hand, and in opposition to that, defender said he was a public officer; that what he did was done in the execution of his duty, and in the honest belief that he was acting within the statutory powers; and that although he might have been wrong in that belief, yet he could not be made liable in damages. They would have to consider the legal position of the parties. On the 29th or 28th of May, these cows were ordered to be sent to the slaughterhouse, and slaughtered there. The Act under which the defender acted as one of the inspectors was one of great public utility, and it placed in the hands of the public body, who were called upon to execute it, very important statutory powers intended for the benefit of the general public, although they might sometimes press somewhat heavily. But those powers must be executed by the body to whom the Legislature had confided them; and further, they must be executed in the manner in which the Legislature had directed. If they were not exercised by the body or person to whom the Legislature had confided the exercise of those powers, then they were not properly exercised; nor were they lawfully exercised except in the manner directed by the statute. Now, one important part of the local authority's powers was contained in the 54th and 56th sections of the statute under which the inspector acted. He was not going to trouble the jury with reading those clauses—which, so far as he could judge, were not very difficult to construe. The first section directed that when an inspector found Pleuro-pneumonia in his district, he shall make a declaration under his hand to that effect, and shall deliver notice of the same to the occupier of the field or premises within which such disease is found. It was obviously a written declaration and a written notice that was here implied. In trusting the local authority and the inspector with very large and important powers, which were to be suddenly and sharply exercised, the Legislature at the same time required certain preliminaries to be observed so as to ensure the due fulfilment of those powers. The statute added: "And thereupon" (*i.e.* after the delivery of the declaration and notice) the Privy Council rules applicable to Pleuro-pneumonia shall come into operation." Then the matter was before the local authority; and the result of the deliberation of the local authority was to continue, if it so pleased, the duration of those rules, which would then continue to exist until the cattle were destroyed. Under these rules no animal suspected of Pleuro-pneumonia could be removed from premises except for immediate slaughter, and after getting a license for its removal. His Lordship then referred to the evidence in the present case. It had been said that the pursuer, far from desiring that the animals should not be removed and slaughtered, was even anxious for their removal to be slaughtered, and that this led him to visit the defender on the day before the animals were killed. This was an important matter for consideration. The cows were left apparently on some arrangement with a person named Notman, who, on the Saturday, fearing the existence of some contagious disease, took the opinion of a local man on the matter, which, though not very explicit, was yet sufficient to make him believe that in point of fact the animals were affected with some contagious disease. This was communicated to Dunn, and thereafter to Smith; and on the Monday the defender inspected the premises, as was his duty under the Act as inspector. Now, it was important to keep in mind that if these animals were infected with this disease, then, of course, they could not be removed without official authority. It was said that the desire to get the cattle removed for slaughter was the

reason which had led pursuer to visit the defender on the Monday morning. If the jury were satisfied that pursuer wanted the animals slaughtered, and that they were slaughtered really in accordance with his request, then it was difficult to see what the pursuer had to complain of as regards the defender. That was a matter of fact entirely for the consideration of the jury. The defender went out to make an inspection, and having done so, he said that he thought both cows were affected with Pleuro-pneumonia, and so intimated to pursuer. Here they came to a somewhat nice question. If the slaughter was done with the consent of the pursuer, there was no doubt about the case; but assuming that pursuer did not, anterior to the inspection by defender, at all desire the slaughter of the animals, let them see what took place after Mr. Williams made his examination and reported the result to the pursuer. The pursuer said that after that examination was made, he (Mr. Williams, the defender) ordered the cows to be slaughtered, and did so in virtue of his office as inspector. Now, he had to inform the jury that, so far as he could judge, the defender had no power in virtue of his office to order the slaughter of these cows. That matter rested entirely with the local authority, who could not devolve the whole of their statutory powers upon an inspector. The duty of the inspector after the inspection plainly was (assuming that he was not acting with the assent of pursuer) to give immediate notice—the effect of which would have been to bring into operation the statutory rules already referred to. But if the order was really assented to by pursuer, as being the best thing to be done under the circumstances, another question arose. This was an important point. Before pursuer could obtain a verdict, it was necessary for him to prove that the order was wrongful to him. Although the order might be beyond defender's powers as inspector, it would not, however, be wrong if the pursuer assented. The cows were on the premises of Notman, who would not very likely be willing to retain cattle of the kind longer than he could help. He was unwilling to keep them after the alleged outbreak, and pursuer was at a loss how to dispose of the animals. Having pointed out that the order would not have been wrong if pursuer assented, there were two qualifications which should be stated in justice to pursuer. They must be satisfied as to whether the assent of the pursuer was not due to the assumption of unlawful authority by the defender. If due to that, it would never do to say the pursuer was bound by that. Then, if the assent was procured by defender giving an opinion as to the condition of the cows which was not in good faith, or after due inquiry, or on reasonable grounds, such assent would not be binding. Now, it seemed certain that one of the animals was not suffering from Pleuro-pneumonia, but there was a great dispute as to the other. It had been suggested that the defender must necessarily have misconducted himself in making the examination, but that would be for the jury to say. They would hardly be inclined to think that a man misconducted himself because he happened to be in error, or that defender had necessarily misconducted himself. It was a disputed question as to whether one of the animals was suffering from Pleuro-pneumonia. Professors Walley and M'Call, and Mr. Robertson, Kelso, said no, while the defender and his assistant Johnson said it was; and the inspection of a portion of its body—a rib, with old adhesions—preserved by the defender led certain others to give an opinion to the same effect. Then, supposing both animals to have been affected with disease, the pursuer's case would not necessarily fail, because the defender had no right to give the order for slaughter. But in that case the cows had to be killed, and it was difficult to see how the pursuer could recover much damage. As to the antedating of the declaration and notice, which were served *after* instead of *before* the order for slaughter, his Lordship could not say it was in any respect a right thing to issue documents which

were antedated; still he did not think it had much to do with this case, which rested on the points to which he had referred. If they found for the pursuer, they would have to consider what amount of damage should be awarded, and what loss had been sustained. To save any dispute about the law, the best way to assess the damage would be to consider what was the reasonable value of the animals.

After half an hour's deliberation, the jury returned a verdict for £20 damages in favour of pursuer, with expenses.

Army Veterinary Department.

Gazette, February 1.

VETERINARY DEPARTMENT.—The undermentioned veterinary surgeons to be veterinary surgeons of the first class: J. C. Berne, J. Reilley, F. Plombley —all of the Royal Artillery.

Obituary.

THE following deaths have been reported to the Registrar of the Royal College of Veterinary Surgeons:—

	Diploma dated
Mr. Francis Grace, Oxford	May 20, 1851.
„ Alex. C. Muir, Belharm, Haddington . .	May 11, 1859.
„ Thomas Little, North Cave, Yorkshire . .	Feb. 27, 1867.

Notes and News.

TRICHINOSIS IN GERMANY.—For the third time within a very short period, says the *Farmer*, trichinæ have been found in the flesh of swine slaughtered in Angerburg. In each instance the affected animals had been kept in the flayer's yard, where it is well known that they were fed on carrion and offal. In Cassel fears are expressed that Trichinosis will soon be prevalent all through Lower Hesse. At first it was confined to a few places in the Cassel district, but its appearance has since been reported in Meldungen and Hersfeld, and later still in the town of Spangenberg. Similar disturbing announcements come from Saxony, Silesia, and various other provinces.

OFFICIAL DOG COLLARS.—With regard to dog licenses, the Inland Revenue Commissioners report that the machinery of their department is insufficient for an extensive discovery of defaulters; and, referring to a suggestion that all dogs should be compelled to wear an official collar, says the details of any such regulations, when examined, would be found to be so objectionable as to be practically impossible.

BEARING-REINS.—In the course of his second lecture at the Royal Institution, recently delivered, Professor Garrod is reported to have offered some remarks on the bearing-rein which we do not understand. The *ligamentum nuchæ* of a quadruped, as is well known, supports the head, and in health relieves muscular tension in maintaining the weight; but that is surely no reason why a rein connecting the mouth by a bit with the collar which bears

on the cervical vertebræ (?), near the vertebral prominences, should be imposed on the animal to supplement the provision made by nature. Under the best of circumstances, casting out of account the pain and injury inflicted on the mouth of the animal, the effect of this rein must be to throw the weight of the head upon the muscles instead of the ligaments. If from weakness the horse allows its head to drop, the aim should be to restore the vital strength of the natural support, not to place the burden on a part of the organism which the ligament was intended to relieve.—*Lancet.*

Diphtheria among Army Horses in Russia.—A Russian correspondent of *The Army and Navy Gazette* states that the whole of the field artillery belonging to the garrison at Sebastopol, has been rendered *hors de combat* by an outbreak of Diphtheria among the horses. The first horse found to be affected by the disease was isolated immediately, but the same symptoms soon manifested themselves in the remainder, and the whole of them have had to be shot.

The Courage of Ignorance.—The eccentric old gentleman who, for so many years, has had the effrontery to assert that the medical and veterinary profession are mistaken with regard to Rabies and Hydrophobia, and that he alone is possessed of all knowledge with regard to these maladies, and to others which affect the canine species, yet persists in his discreditable attempts to perpetuate pernicious nonsense. Utterly ignorant of the subject which he continues to write about, he nevertheless has the courage to assert, on his *honour* as a soldier and a gentleman (!), that he is perfectly acquainted with it. His ignorance has been so frequently exposed, and the dangerous and baseless notions he is so determined to foist upon the public have been so often demolished, that it is to be regretted his friends do not lay an embargo on his writing materials. However, few journals or newspapers will now admit his rambling effusions—though we observed with astonishment that the *Lancet* published a characteristic letter from him a few weeks ago. A similar communication was recently addressed to the *Medical Press and Circular*, but its absurdity was too much for that journal, as appears from the following :

"The Honble. Grantley Berkeley and Hydrophobia.—We have carefully perused your letter, and regret we must decline to insert it. We believe your views on the subject are erroneous, and we prefer the opinions of such eminent veterinarians as Fleming, Bouley, Hertwig, etc., to whom you take exception. The name 'Hydrophobia' is a misnomer, and has led to numerous errors in connection with the disease which we have termed—adopting a very old name—*Rabies.*"

We trust other publications will follow the example of the *Medical Press*, and exclude Mr. Berkeley from their columns. By doing this, they will be protecting the public from dangerous fictions, and aiding the cause of truth.

Correspondence, etc.

"THE PENAL CLAUSE"—HOW TO OBTAIN IT.

To the Editor of the Veterinary Journal.

Sir,—A penal clause is a clause in an Act of Parliament that gives a magistrate the power to inflict a stated penalty on any person who breaks such law ; no charter containing such a clause could enforce a fine or penalty. I know it is the case that an overwhelming majority of the members of our profession are in favour of obtaining—nay, most anxious that we should

possess—the power to indict any one who uses or assumes the name or title of "veterinary surgeon," unless such person has obtained the diploma of the Royal College of Veterinary Surgeons. At present we have no such power, and the only way we can obtain it is to apply to Parliament for an Act containing such a clause, clearly defined and set forth. The questions are—first, what will be the cost? second, when will be the most opportune time to apply for it? third, how much will it benefit our profession?

1st. We have it on the authority of our President, Sir F. Fitzwygram, that to obtain an Act of Parliament, if unopposed, would cost about £300; but if it be opposed it is quite impossible to say how much it might cost, and even then be lost. Fifteen years ago I offered to subscribe £50 for this purpose, and there are many willing to subscribe to this object.

2ndly. The same high authority informs us that the present is really an inopportune time; and he is confirmed in this opinion by Professor Williams, Mr. Harpley, and many others who are anxiously solicitous for the welfare of the profession, and who understand fully every circumstance bearing upon the question. I assure my professional brethren that there are many delicate and difficult questions, which have to be taken into very careful consideration, and manipulated with prudence—questions which, it would seem, many gentlemen who speak upon this subject do not comprehend, or rather, they have not got the facts of the case before them, by which they would be enabled to see their way and form a proper and correct opinion. They do not understand the true feeling. They have not witnessed, as I have done, the intense feeling which exists in the metropolis of Scotland to possess a separate Veterinary Charter for that country. This feeling seems to be so deeply rooted in the minds of some of the members of the corporate body, and some members of the Highland and Agricultural Society, that nothing can modify or remove it. They have not witnessed, as I have witnessed on more than one occasion,—but more especially when a deputation appointed by the Royal College of Veterinary Surgeons in 1869 met a number of members of the Corporation of Edinburgh and members of the Highland and Agricultural Society,—they have not witnessed, as I did on that occasion, the intensely strong feeling that exists in the true Scotch character, the persistent determination in the minds of these men. Messrs. John Wilkinson, John Lawson, W. Field, George Fleming, George Morgan, W. Robertson, Professor Williams and myself, tried with all the power that in us lay to establish the fact that union is strength and disunion weakness: all our efforts were utterly unavailing. If they had seen, as I saw that night, Mr. John Lawson for one whole hour in close, earnest argument with one of the town councillors,—at one time bringing all his manly, powerful mind, bristling with intense intelligence, to his aid, at other times using his sweet, fascinating smile, his winning, persuasive manners—— But all in vain: he gave him up, and, as he said to me, he was utterly impervious to reason. Or had they seen Mr. John Wilkinson (the great diplomatist) and Mr. Menzies, the secretary to the Highland and Agricultural Society, sit face to face for four hours—four mortal hours—within one foot of each other, engaged all the time in an intensely earnest discussion on the same subject,—seen Mr. Wilkinson break down and destroy all the outworks of the discussion, clear away every obstacle, and approach the bare walls of the citadel itself,—seen him storm the citadel, carry it, and dismount every gun,—at that moment I verily believe any man of any other nationality under the sun would have surrendered unconditionally, and from that moment the Highland and Agricultural Society's Board would have been a thing of the past. But not so: Mr. Menzies was a true Scotchman, and believed only in the omnipotence of a separate Charter for Scotland, and that they would have it. I saw enough to convince me, and it convinced us all, of two things: viz., 1st, that reason and argument were

wasted—that there was nothing in the world so difficult as to convince a Scotchman against his will; and, 2nd, if we only touch the Scotch thistle by applying to Parliament for powers whereby we alone can give the name and title of veterinary surgeon, and make it an indictable offence for any other person using the name and title, we should be certain to arouse such a powerful opposition as would render it utterly impossible for us, with our limited means, to overcome. I warn gentlemen to be aware how they stir up, without intending it, a feeling and spirit in Scotland which they may be quite powerless to guide or quench, by using language weak, irritating, and dangerous.

We then asked ourselves what was best to be done under the circumstances. Twelve years ago it occurred to our minds—and none were stronger advocates of it than the late John Wilkinson, John Lawson, and William Field—that the best means to attain our end was to get, if possible, every veterinary surgeon holding the certificate of the Highland and Agricultural Society to become a member of the body corporate. We found there were a goodly number of these gentlemen; certain influences had been brought to bear on them at the time they had finished their studies at the Edinburgh Veterinary College; they did not present themselves at the time for examination at the Board of Examiners appointed by the Royal College of Veterinary Surgeons; in after years it would seem, for one reason or another, they felt a desire to possess the diploma of the Royal College; but a difficulty existed. These gentlemen had been engaged in daily practice for years; their minds had been wholly occupied and engrossed in establishing themselves in their business; and they had forgotten many of the scientific points necessary for them to know, if they must pass the ordinary examination. To meet their case it was necessary for us to suspend a certain bye-law, and to admit these gentlemen—not by a back door, nor by a side door: we have no such door—but by a formal or practical examination. This was done in 1866; the whole country approved what we did at the time, and thirty or forty gentlemen or more availed themselves of this means to enter the corporate body. Let us for a moment examine this process, and see how it acted. Up to the moment they obtained our diploma they belonged to another party; they used that party's arguments; their sympathies and leanings were all for them. That party had all along an intense antipathy to the Royal College of Veterinary Surgeons. The idea of antagonism had been instilled into their minds and fostered there. They were shown that the certificate was in every sense as good as the diploma; that he who possessed it could enter the Honourable East India Company's service or Her Majesty's service, and practise as a veterinary surgeon, without let or hindrance from any one. There continued to exist a sort of clannish bitter feeling, and many of those with our diploma looked down upon and treated these gentlemen as holding only a secondary title, and being consequently inferior to them. Some would not meet them in consultation; and thus was the schism and antagonism kept up, and a divided profession perpetuated.

But what takes place after they become of us? This is the point to which I wish to specially call your attention, since I believe there is very much in it. A change has come over these gentlemen: they are now one with us, they adopt our views and arguments, all their sympathies and leanings are with us, and thus, so far as they are concerned, they contribute to make our profession one strong and united body.

At the present time there are a few more who, no doubt, have had an influence exerted upon them, like the above, at the time of leaving college. They now wish to come and be one with us; they are willing to pay a full fee, but having been in practice three or more years, and daily occupied in their business, they cannot spare the time to pass the three examinations, as

required by the present rules. What our President asks is, that the bye-law should be again suspended in order to receive these stragglers into our body corporate, and make them one with us ; and thus, as far as it goes, strengthen our cause, and in exactly the same ratio weaken the cause that opposes us.

You may ask me, Are we to do this again and again indefinitely? I reply, No ; we have the best of reasons for feeling certain it will be wholly unnecessary in a very brief space of time.

I wish to impress this fact upon my professional brethren—that the only object, reason, or purpose of our President and those who act with him, is to conduct this matter so as not to give offence to the sensitive feelings of our Scotch competitors, to bring about at the earliest moment possible a discontinuance of the Highland and Agricultural Society's examination, and to create a really and truly united profession, with only one examining board and one diploma. We believe this is the surest and safest method of attaining this very desirable end.

We find that Professor Dick's College was never exalted or endowed by a charter of any description, any more than my establishment is ; even the Highland and Agricultural Society of Scotland, which is purely and simply an agricultural society, has no clause in its Charter to appoint a board of examiners to examine veterinary students ; they have arrogated that power, which is quite an illegal act. They have no more legal or moral right to do so than the Royal Agricultural Society of England has, or even our Altrincham, Swinton and Worsley, or Middleton agricultural shows have. And what, let me ask, would be thought of a certificate (call it a diploma if you like) presented by all or each of these bodies,—a certificate setting forth that the owner of such is hereby authorized to practise the art and science of veterinary surgery? Would it not smack of the absurd and ridiculous? And yet these have quite as good a right or claim to do so as the Highland and Agricultural Society of Scotland has. Is it to be wondered at that the holders of this certificate only too soon feel the want of a better authority? But only whisper to the Highland Society, or to the Corporation of Edinburgh, that our diploma has more weight and more importance, because it emanates from a Charter granted to the United Kingdom of Great Britain and Ireland, and the effect produced by such a whisper may be likened to the red rag shaken before the bull's face.

As to the suspension of the bye-law being an injustice to the other students, that is not worth dwelling upon for one moment ; it is really a very narrow view of it, when we allow our minds to be circumscribed and warped by petty personal jealousies, and refuse to see the great national importance of the movement. Such men cannot understand that it is then, but not until then, when we have no opponents in the field, that we can apply for, and succeed in obtaining, our long-cherished wish—viz., an Act of Parliament containing the clause so much coveted. This is the banner we wish to raise.

3rdly. The benefit to be derived by the members of our profession will be, in the first place, the satisfaction of seeing that no one can use the title of veterinary surgeon upon his sign, door-plate, bill-heads, etc., unless he possesses the diploma of the Royal College of Veterinary Surgeons. If any one does use the title and possesses not the diploma, he can be indicted and summoned before a magistrate, and fined £10 for each offence, or any other sum the Act specifies. The qualified man will then stand upon a higher ground, and the non-qualified man will be degraded. In the second place, the non-qualified man, appearing now in his true colours, would designate himself "farrier," "horse doctor," "cow-leech," or any other grand title he might think best. Some of his employers might probably leave him, and go to the nearest qualified man. Some of my professional brethren would go

much further than this, and, speaking as they would wish it to be, say, "Oh yes, they would all leave him and flock to the qualified man, and thus fill his coffers." But not so fast, my friends: it will not be so; there are many men practising, both in town and in country, who are well known to be non-qualified men, but who, it would appear, are more appreciated and more popular, because more successful, than the qualified man in the locality is. No; take my word for it, even when we have got this penal clause, we must prove ourselves to be thoroughly competent, practical, and successful men, or the public will continue to call in and employ the non-qualified man, notwithstanding that he has altered his signboard. In conclusion, let me beg most earnestly that we also remember this,—that everything depends upon ourselves individually to make our profession what we wish it to be. Let us never show a carelessness, an indifference, in the performance of our duties; let us be diligent and industrious, cultivate kindly, pleasant, and agreeable manners, be gentlemanly and honourable in all we do; avoid, above all things, making charges out of all proportion to services rendered; and then I say it must follow, provided always that we possess a thorough practical knowledge of our business, that we shall be able to make and sustain a character and position for ourselves that will be everything we can desire.

I am, sir,

Yours obediently,

THOMAS GREAVES, F.R.C.V.S.

Manchester, *February 13th*, 1878.

VETERINARY SURGEONS AND HORSE-DEALERS, WITH RESPECT TO THE EXAMINATION OF HORSES AS TO SOUNDNESS.

To the Editor of the VETERINARY JOURNAL.

SIR,—I believe that most practitioners have experienced the unpleasantness of examining a horse as to soundness for a client, with the vendor (horse-dealer) present, at either of their respective establishments. If at the dealer's, he will easily remember the hundred and one things done and talked of, to purposely distract the attention from the subject in question—the soundness or unsoundness of the animal. You may get on pretty well during that part of the examination which is conducted in the stable and whilst the animal is standing, with the exception of being talked to and talked at; but when you require a straight and slow run out in hand, then come your difficulties. You have not only the dealer to contend with, but his man: he will either run too fast, or scarcely run at all, or excite the animal too much, or hold his head so tight that any slight lameness is likely to escape your notice. If, after going through the general routine, you believe the horse to be sound, and say so, you have simply done, according to the dealer's idea, just the right thing, and in most cases that is all he cares about you. But supposing you detect a slight bony enlargement in the seat of spavin on one hock, a corn in one fore-foot, or one fore-foot smaller and of a different shape to the other,—you note one or all of these defects. Your client has a horror of an unsound horse: he wants "yes," or "no." If sound, he takes him; if you cannot pronounce him to be so to the best of your belief, he refuses to take the animal: no half measures. Possibly it may be one of the defects I have mentioned, or some other fault, existing in so slight a degree, that in your opinion it may never interfere with the usefulness of the animal. You state this, and suggest that if the dealer will stand by the particular defect for a given time, you would advise your client to take the animal. But no: you

cannot say he is sound, and there is the end of the transaction, as far as your client is concerned. Then comes the abuse, bullyism and blackguardism of the dealer. You are everything that is bad; know nothing of your business; in fact, are hardly fit to live. Perhaps you are told in a jeering tone that Mr. A, B, or C, would pass the animal; and I am sorry to add that in some cases the dealer speaks the truth. It is wonderful and painful to me that the members of our profession are not more unanimous in their opinions respecting what constitutes unsoundness in the horse. A horse, to be legally sound, is one thing; practically sound, another; and members of our profession who deal largely in horses, are apt to imbibe more of the ideas of the dealer, and of necessity lose that delicacy of decision so essential to a scientific veterinary surgeon, and which enables him to distinguish between a sound and an unsound animal. Therefore we, as a body, lose respect through the neglect of adhering to our motto ("*Vis unita fortior*"), and by our unprejudiced and independent opinion help each other by forcing the public, and especially the dealer, to respect them (though they may not be at all times palatable), by proving that they cannot get the verdict of "bone spavin," and consequent unsoundness of one day, reversed the next day into no spavin at all, and perfect soundness. I am aware that in many cases it is very difficult to decide between exostosis and the natural formation of the hock; but I contend, and I know that I am borne out both by morbid specimens and by gentlemen in the profession, that where we have one hock decidedly larger (and when I say "decidedly," I mean that there ought not reasonably to be two opinions on the subject) than the other in the seat of spavin, they cannot both be right; and I think there ought not to be much difficulty in conscientiously pronouncing such to be a diseased and consequently unsound hock. By so doing, we should prevent such unscrupulous men bandying our names and reputations in the most uncomplimentary and detrimental manner possible.

I beg to remain,

Yours very truly,

Norwich, *February 13th*, 1878. A. H. Santy, F.R.C.V.S.

QUACKERY.

To the Editor of the Veterinary Journal.

Sir,—I am obliged to Mr. Watson for his notice, in this month's issue of the *Journal*, of my paper on the above subject. But Mr. Watson says he cannot quite coincide with my arguments, and proceeds to notice certain points: first, finding fault with my statement "that a man has a perfect right to utilise his knowledge and pursue what course he considers best for his own interest." Now, it is to be observed that the remark is made in my paper, as the context shows, in dealing with the quack as an independent individual, and in conjunction with his inability or otherwise to avail himself of the college training, and to show my indifference to him and his power as a quack.

Of course, if the quack is blind enough to consider it to be to his own interest not to qualify himself, who is to gainsay him? It is only so much the worse for the quack.

Mr. Watson does not surely think that I would apply the same rule to my professional brethren: indeed, the whole paper is a protest against this idea, which, alas! is only too prevalent in the profession. The moment a man qualifies himself at the college, he assumes certain obligations and responsibilities, expressed or implied; and amongst the latter is one to consider the interests of the profession. Now, the conduct of some members clearly

indicates that these interests are not such as a selfish man would consider,—or what mean the deliberations between the "licentiate" and the "charlatan," if it be not one of self-interest as opposed to the interest of the profession? Absurd and ridiculous as Mr. Watson considers such deliberations, I can assure him it is a common practice in this district. I have been five-and-a-half years here, and have had ample opportunity of consulting with quacks; and, had I considered my own immediate interest, I should have complied but I have always declined, as will be judged from the tenor of my paper. What will Mr. Watson think, when he is told that it is a common practice here for licentiates (Fellows too), to consult with "charlatans"? Mr. Watson says, "Let us have the power of suppressing imposition." Well, where is the power to come from, except it is taken in hand by the profession as a body? Here is an imposition: who will handle it? It is all very well to talk about putting these quack "parasites" down, as much by individual effort as by united force; but what chance has the former, when quackery is supported by honourable and eminent members of our profession? If Mr. Watson or any one else would like names, chapter and verse, they can have them; indeed, I think they ought to be demanded by some authority. As far as my individual effort goes, it is war to the knife, more especially with the quack of quacks.

Speaking on my remarks on the sister profession, Mr. Watson says that he fails also to perceive the lesson; but here, again, I think he is wrong, as a further perusal of my paper will show him that I was speaking about a quack assuming the title of Veterinary Surgeon. Let a quack invade the sister profession, and call himself surgeon, and visit the sick: he will soon find out what the nature of the united front is. It is not the quack who advertises his nostrums under his own name, without professional title, that is calculated to do harm; the public have their eyes open, and are not deceived or think they are purchasing something which they are not. It is the unchallenged assumption of the practitioner unblushingly declaring himself Veterinary Surgeon which does the mischief. The time will come when it will be put a stop to, and I think it is a scandal to the profession for a young man to be cast adrift, after having fought for and obtained a creditable distinction, and have to combat alone the insidious influences that the system exposes him to. I can quite imagine a young man who had not long left college struggling for a position, and having absolutely to fall into the arms of the quack for an existence. This should not be; and I do trust that Mr. Watson will put his shoulder to the wheel, and endeavour to alter this state of things. Further, as to homœopathy. Probably there is a modicum of truth in it; but what I condemn is the absurd practice of members of our profession practising both systems at the will of the client. What must be thought of the consistency of such a man? We need not go seeking for facts, therefore, before condemnation; in the eyes of common sense the fact of such practice is its own condemnation. If a man is a homœopath, he can have no faith in the allopathic treatment of disease, and *vice versâ*.

I have followed Mr. Watson as closely as I have time to do at present, through his somewhat wandering remarks; much more might be said, but the two chief difficulties to be met with in promoting the respectability of our noble profession are those most particularly referred to herein. Mr. Watson seems to lose the precise issue of every point he has attempted to notice. Will he be kind enough, as already requested, to exercise his influence upon the profession, as a body—to apply the words he takes (I think with questionable taste, however) from St. Paul? Further, what are the "enlightenments," "aspirations," "prejudices," "judgments," and "experiences" of our time, is a question I should have been glad if Mr. Watson would have thrown some light upon. And is the present state of things in our profession calculated

to put us to the front as representatives of the country's "intelligence" and "humanity," or to separate us from its "sectional" or "party" feelings, still less from its "quackery," its "delusions," and its "cant"?

Mr. Watson, in the commencement of his letter, speaks of my giving the quack a complimentary clap on the back, and wonders why I do not exercise the same charity towards "all sections" of my professional brethren. I should like to know what section of his professional brethren he places the quack in.

Mr. Watson speaks of another species of quackery which I have not mentioned—viz., non-professional men conducting branch practices under the name and title of the principal. In my paper I merely speak from my personal observations, and have simply to say that I was entirely ignorant that such a professional curse existed; and I think it behoves Mr. Watson, and all members who love their profession, to open their mouths and hold up to professional obloquy those members who would stoop to such base flagrancy.

In conclusion: surely the time has arrived when we should have some protection, both against the quack assuming the title of Veterinary Surgeon, and against the "licentiate" who brings discredit upon the profession in such glaring colours! What but protection is the order of the day, both in the medical and legal professions, and even in the industries of our country?—and is the spirit of our body corporate at such a low ebb as to leave it stranded, to be shot at by all the leeches in the country, in and out of the profession? I believe our own favoured country is the only one which does not extend its protection to the veterinary profession.

I am, dear Sir,
Yours faithfully,

Halifax, *February 13th*, 1878. PARLAN WALKER.

"FEEDING CAKES" FOR HORSES AND CATTLE.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—In several of your late issues there have appeared articles in "Notes and News" referring to "horse cakes" manufactured in Russia. Presuming that these articles have been inserted in order to bring this novel method of feeding under the notice of horse-keepers in this country, we have ventured to intrude upon your valuable space in order to inform both you and your readers, that for more than six months we have been preparing feeding cakes for horses and cattle—the latter differing very essentially from the former. The objects to be gained by this method of feeding are as follows: 1. They are composed of a variety of well-known feeding materials, with which are combined a certain proportion of carminative agents,—thus forming a mixed food of great value. 2. The ingredients are ground and partially cooked before being pressed into cakes; thus saving much trouble to the consumer and causing the food to be much more readily assimilated. 3. The trouble of grinding or "kibbling" foods, and then mixing, is entirely avoided. 4. The cakes are convenient for transit: being compressed they occupy much less space, and being round they do not readily break. 5. Animals cannot waste their food to such an extent as is the case when fed on meals; thus the cakes are more economical to use.

We shall be very pleased to hear any expression of opinion from you or your readers on this method of feeding, as we feel convinced that it only requires time in order to bring it into general use.

Yours truly,

Birmingham. B. C. TIPPER AND SON.

FASHION IN THE TREATMENT OF DISEASE.

To the Editor of the VETERINARY JOURNAL.

SIR,--If we carry out the metaphor suggested by the pathological ideas enunciated by Mr. Gresswell—viz., "That inflammatory action is not due to an alteration in the walls of the bloodvessels, but to changes in the blood itself"—we shall find that they land us in Red Republicanism. He puts too much power into the hands of the *plebs:* the corpuscles, being the most important elements of the blood *in inflammation*, might be taken as representing these functionaries. He seems to forget, or perhaps does not choose to remember, that the animal economy is governed on the constitutional monarchical principle. We have the king or governor in the brain, with the various nerve-centres and ganglia as his ministers and advisers—his cabinet, in fact —who can initiate movements and give orders, but who require his sanction before war can be declared, or such an important proceeding as inflammation sanctioned.

Let us suppose, for instance, that a good sharp vesicant is applied to the walls of a healthy chest. What takes place? Before the active agent has penetrated the epithelium, a telegram from one of the never-wearying sentinels informs the governor that an enemy is on the border, and likely soon to make a serious irruption on his territory. A return telegram informs the local governors and plebs to hasten their movements and fortify the position, extrude the enemy and repair the breach.

In order to enable them to do this, another telegram is sent, *viâ* the *vagus*, to the cardiac arsenal, to the effect that more material is needed. The resident governor there is all attention, and hurries off the supplies, while the respirating minister in the mansion-house—the "*oblong medulla*"—gives the word "attention" to his servants, the breathing agents, who are soon vigorously at work assisting the cardiac satrap with supplies. These are soon apparent in the elevation of cuticle, and a discharge of serum which fortifies the part; and, if the enemy is not too strong, repels his advance without leaving much trace of his having been present. Now, in this simple process we find that the plebs, although of essential importance as carriers and builders in the economy, are merely passive agents, and have always to be acted upon by some extraneous force; and under no circumstances are they the first to strike or initiate a stasis. They, in short, act the part of the rank and file in a well-organized army.

To descend from metaphor, however, we find that the simple process described is what occurs in all inflammations of vascular tissues, that the stasis is preceded by some irritation or tissue change outside the vessels, inducing a change in the vessels themselves sufficient to disturb the correlation between them and their contents,—in the words of Professor Lister, "that the corpuscles draw to each other, not because they are themselves in an abnormal state, but because the living tissue by which they are surrounded is altered." In the febrile state, the same process is apparent; and even when the blood is charged with Fever poison, it has not invariably an inflammatory tendency, or a tendency to stasis, as should be the case if the initiatory changes began in it. In fact, inflammation is always the result of some irritation, *direct* or *indirect*, of the tissue affected, either by chemical or mechanical agents, or by means of substances conveyed to the blood through the lymphatics or vessels. Dr. A. Ryneck has shown that all the phenomena of stasis can be produced by irritation in the webs of frogs, in which milk or defibrinated blood of mammalia has been substituted for the circulating fluid. If the web of a frog's foot (which had milk injected into the circulation and completely displaced the blood) be touched with a rod moistened with

ammonia, the phenomena of stasis occur in the irritated part. When defibrinated blood is used, the results are even more striking ; for in this case the choked vessels soon exhibit in every respect the same appearances as in ordinary inflammation. "These results," says Dr. Burdon Sanderson, "seem to make it perfectly clear that the local changes which lead to the production of stasis must have their seat either in the walls of the vessels, or in the tissues which immediately surround them."

To determine this more precisely, Dr. Ryneck varied this experiment by first filling the vessels with an indifferent liquid—such as a solution of common salt of proper strength—so as to remove the blood ; then subjecting their internal surfaces for a few moments to an agent which, by virtue of its chemical action, might be expected to modify or destroy its vitality ; and finally, after replacing the injurious liquid by milk or defibrinated blood, observing the effects of local irritation. Solution of chromic acid, chloride of gold, and sulphate of copper were found to be well adapted for thus acting on the vessels. The results were decisive. No stasis was produced by irritation in webs which had been thus treated.

To ordinary, and even extraordinary observers, this evidence would be deemed, and is regarded, conclusive ; but Mr. Gresswell must be a most extraordinary observer, for he cannot believe that facts such as these, elicited from a frog in such a mutilated condition, and possessed of such different physiological properties, can be brought alongside or compared with the pathological condition of the horse. Well, if he, as the result of observation, has discovered any difference in the phenomena of inflammation in warm and cold-blooded animals, he will be entitled to the thanks and gratitude, not only of the profession, but of the whole scientific world,—in fact, his name will be entitled to be handed down to posterity as the grand discoverer of the proper means of interrogating Nature on one of the most important processes, both for good and evil, occurring within her pale, if he will only make it known. But we shall require something more than his *ipse dixit* for it. Nor is inflammation in non-vascular structures affected by this theory, for it is always occasioned by irritation either applied directly to the part, or indirectly through the source whence cartilage or cornea receive their nutritive supply. It is essentially a process of growth and development, and establishes the doctrine of textural pyogenesis. If you irritate a piece of cartilage by scraping it, the cells enlarge and expand their capsules. The protoplasm of which each cell consists becomes more granular, and soon is found to have two corpuscles instead of one. These go on dividing and sub-dividing, until every cavity contains a mass of nucleated cells which ultimately assume the characters of pus corpuscles ; the interstitial substance gradually wastes away, and leaves nothing but a sponge-like stroma, in which the young cells are contained ; these live at the expense of what remains, and eventually destroy it altogether. Or the process may be arrested by the removal of the irritant ; in this case more or less thickening of the cartilage and opacity of the cornea will be the result. Whether this capacity of non-vascular cells to take on pyogenesis when irritated, be the result of direct stimulation of the cells, or of impressions reflected to them by an unknown nervous centre, supposed to preside over nutrition, I am somewhat at a loss to decide. It is certain that they are capable of very active cell formation on direct irritation, and the development in the softened tissue of new vessels from the adjacent vascular area, and with these an extension of the vaso-motor system of nerves which are considered to be under the control of an excito-motory centre, the exact locality of which is one of the unsolved problems of science.

It seems to me as if Mr. Gresswell ignored the action of the nervous system in inflammation and in disease generally ; for he says that "the

cause of disease in plethoric animals is the abnormal quantity of blood existing in the vessels," "that the effects of bleeding can be defended on mechanical principles," "and that its action is primarily upon the hydrauli principle." When we consider that the bodies of all animals are formed upon one uniform plan, so arranged as to insure, as far as possible, not only life, but safety to all, even at the expense of occasional discomfort to some, and that this arrangement is such as may be regarded as the best possible for an irrational animal, we cannot fail to perceive the utility and importance of the nervous system, and its correlation with other systems in the production and cure of disease.

"The nervous system," says Travers, "forms the portal, as well as the herald of all diseased action ; and no altered action of whatever description can be instituted but by its medium." Nor can any treatment of disease be efficacious, unless a due regard is had to its agency. Now, if bleeding can be defended on purely mechanical principles, and its action is that of hydraulics—a simple diminution of the whole mass of blood in the system—then the nervous system has been created in vain.

But it cannot be so defended ; for it is the nervous system that first feels the effects of the loss of blood, and the impression made on the brain reacts upon the heart ; and this is regarded by the best authorities as the *modus operandi* of bleeding, and not any mere diminution in the mass of the blood, or removal from it of any poisonous or inflammatory element. It is impossible that the mere abstraction of one portion of blood, to be immediately replaced by another portion of precisely similar blood, could have any effect in checking an inflammation, except to influence the vitality of the part in the way of weakening it, and thus rather to favour than prevent or check it.

It is long since M. Andral pointed out that plethora, or an excess of blood, does not predispose to inflammation. And further, clinical facts and statistics tend to prove that excessive depletion leads to the production, or at least favours the occurrence, of inflammation. Dr. Graves records a case where a poor man was bled five times for a fit of Apoplexy, and had been debilitated by various other depletory measures ; and in three days afterwards, while lying exhausted and drained of blood, inflammation commenced in the pleura and went on to a fatal termination, unchecked by remedies.

"There are none," says Dr. Alison, "who resist the exciting causes of inflammation so well as those in whom the blood is abundant, and the vascular system vigorous. But the tendency to inflammation is remarkably given by all permanent causes of debility, by imperfect nourishment, impure air, long-continued heat or cold, excessive evacuation, and intemperance."

These facts seem to prove that the mere diminution of the quantity of the blood in the organism is of no avail in checking an inflammation, and, *à fortiori*, it cannot cut short an inflammation already begun, however much it may, by a general diminution of the vitality, mask the more important symptoms.

But that it does produce a certain effect upon the system is obvious—at least, to all those who have witnessed a sudden depletion in such a case as Mr. Gresswell describes ; though not just in the way he would have us believe, but rather in the way I have endeavoured to point out : viz., its action upon and through the nervous system.

Consistent with his previously expressed pathological opinions, Mr. Gresswell goes on to try to prove that an excess of *nitrogenous elements* in the blood gives rise to Inflammation of the Kidneys, and "an *excessive quantity* of *albuminous material suddenly introduced into the system of a horse will produce Laminitis*," and "Gout in the human subject."

This is rather a new doctrine to me. It is evidently Lincolnshire pathology,

and I should much like to hear the reasoning and the facts by which it is supported.

Inflammation of the Kidneys is not a common condition in the lower animals, and, if it ever occurs, is usually the result of infective materials from some primary lesion, and consequently belongs to the class of infective inflammations. The effete nitrogenous elements of the body leave it by the kidneys in the shape of urea, for the removal of which the secretion of urine seems especially provided. If from any cause the functions of the kidneys are suppressed, the accumulation of urea in the blood is very soon productive of serious mischief; indeed, it is inimical to life. It is the first time I ever read of its being the cause of Nephritis, which is generally caused by indiscretion in the administration of irritant diuretics. The phenomena that appear as a consequence of an excess of nitrogenous elements in the blood, were first described by the late Mr. Haycock as "Hysteria," and are now known, as described by Professor Williams, as "Azoturia," the symptoms of which are altogether different from "Nephritis."

Nor is Mr. Gresswell more happy in his illustration of the effects of "*albuminous material suddenly introduced into the system of a horse.*" Even although it were true that a quantity of albuminous food suddenly introduced into the system of a horse will produce Laminitis, it does not prove "that the blood is the *vera causa* of inflammation." When a horse eats a quantity of wheat, every one knows that this will give rise to Laminitis, if it does not kill him by causing Enteritis; he cannot, properly speaking, be said to have eaten excessively of albuminous food. Indeed, it is a typical food, having all the elements in proper proportion for sustaining life,—hence its universality. But notwithstanding its composition as a typical food, it seems very ill suited for the economy of the horse, and he is almost certain to be affected with Enteritis or Laminitis from even its moderate use. Nor is it the albumen contained in it, or indeed in any other food, that will of itself produce inflammation, however suddenly introduced into the system. Laminitis arising from sudden introduction of wheat, barley, or maize into the stomach of a horse, is the result of direct irritation of the mucous membrane, and probably the development in it of some irritating, and even poisonous gas—such as *phosphuretted hydrogen*,—as we know the ash of these cereals contains a large per-centage of phosphorus, especially wheat. Laminitis takes place in the way of metastasis, which is generally regarded as the result of an erratic or disordered nervous force, probably the result of the close relation between the splanchnic ganglia and the vaso-motor centre.

Nor is Gout in the human subject regarded by the best authorities as the result of an excess of albuminous food, but rather of carbonaceous or fatty food, and the use of wines and ales, together with little exercise. These give rise to an excess of *lithic acid*, and a deposit of lithate or urate of soda in the fibrous tissues of the body, especially about the joints. It used to be considered a disease of the rich, but it is now pretty common among the working classes. It is a very rare thing to find a case of Gout among the farm-labourers in the north of Scotland, but it is quite common in the same class in this district (Lincolnshire). And the reason is obvious :—In this district, the food of the labourer is principally composed of fat pork and beer, with fat puddings and dumplings that would make a Scotch labourer stand aghast; while the food of the latter is chiefly composed of oatmeal and milk—a far more albuminous diet than that of his English compeer. So we see that the diseased conditions, cited by Mr. Greswell to show that a superabundance of nitrogenous or albuminous elements in the blood give rise to inflammation, completely fail to establish his argument. Moreover, the effete nitrogenous elements of the body leave it in the shape of urea only by the kidneys, and "if it were the cause of Nephritis," we should frequently meet with such a

disease; and if from any cause these organs do take on diseased action, so that the urea is not separated from the blood, I still maintain that the phenomena are very different from those of inflammation.

Regarding the action of *antimony* and *digitalis*, I have only to reiterate my former statements, for they are borne out by experimental facts made by experts of the highest scientific attainments, and are confirmed by practice. I have no doubt but that a great many practitioners use them; but the sole or the principal effects they produce, are the effects on the minds of those who administer them. The fact that Mr. Greswell extols their use and that of blood-letting in inflammatory complaints, is the best proof that he is himself a victim of that fell tyrant which it is the object of his papers to decry and destroy. I had almost thought that these drugs were dead and buried, until the appearance of his papers—at least, by all practitioners of recent years. Even in the medical profession—in this country at least—the treatment of Pneumonia by blood-letting and tartar emetic is abandoned. It is now nearly a quarter of a century since Dietl, of Vienna, proved on a large scale the inefficacy, or rather injurious character, of the treatment of Pneumonia by these means. In his large hospital at Vienna, he showed that, of one hundred such cases treated by bleeding, twenty died; that almost precisely the same mortality attended the tartar emetic treatment; whilst less than eight per cent. died of those merely confined to bed, and supplied with some saline or cooling drinks. The depletive treatment would still seem to linger about Italy; and Italian doctors yet subject their statesmen—like Cavour—and even their King, to such spoliative remedies. In the case of the King, they seem to have combined the two methods of bleeding and tartar emetic—as if they thought that two bads would make a good; and the world knows and regrets the result.

From this we learn that the medical profession on the Continent—from which we are always hearing of great advances in pathology—has not thrown off the trammels and fashions of a bygone and barbarous age. Had it been to write down such a fashion that Mr. Greswell took up his pen, we could have understood, and even sympathised with him. But when he tries to drag us back to antediluvian fashions, by reviving such theories and practices, and hugging them as long-lost treasures,—and that the more especially when they are founded on wrong premises,—I could scarcely resist the temptation of trying, if possible, to "undeceive" him, seeing that he wishes for it, and "believes so firmly in their efficacy."

In conclusion, I have to thank you for the opportunity afforded of airing these pathological ideas. I have had no selfish or sinister motives to gratify; my object has been the attainment of truth, and the advancement of our common profession. Although I have tried to pull down, I have endeavoured also to build up. If the structure I have tried to raise be baseless, it will be the more easily toppled over; and nothing will give me more pleasure than to see it in ruins, provided that a better can be put in its place.

I beg to remain, yours truly,

J. GERRARD, M.R.C.V.S.

Market Deeping, Lincolnshire.

AN OMISSION.

In the list of gentlemen who had passed the final examination of the Royal College of Veterinary Surgeons, and were admitted members of the profession, as reported in our last issue, we much regret that the Secretary omitted the name of Mr. G. R. Dudgeon, of Sunderland. We take this, the earliest, opportunity of repairing the omission.

ERRATUM.

The reported death of Mr. John Jenks, which appeared in our last, was an error. The death of a Mr. Joseph Jenks, Veterinary Inspector, Dublin, was the cause of the mistake. He was not a member of the profession.

TO CORRESPONDENTS.

"AN ASPIRANT FOR THE FELLOWSHIP."—The Bye-law states that every candidate for the Fellowship degree, except he be a professor or ex-professor at a school affiliated with the Royal College of Veterinary Surgeons, will be required to produce a certificate of graduation in Arts at a University to be recognized for this purpose by the Council, or a certificate of liberal education, after an examination by the College of Preceptors, under the direction and supervision of the Council. The books which would perhaps be most useful in preparing for the examination for the Fellowship, are the following: Williams' Surgery and Medicine; Kirke's Physiology (or Colin's Comparative Physiology, in French); Chauveau and Fleming's Comparative Anatomy of the Domesticated Animals; Fleming's Veterinary Sanitary Science and Police; Dun's Veterinary Medicines.

Owing to the great pressure on our space, a great number of original communications are held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. Cammack, Eccleshall; C. H. Hurrell, Southminster; J. M. Parker, Birmingham; L. Butters, Norwich; J. C. Dwyer, Royal Horse Artillery, Woolwich; G. R. Dudgeon, Sunderland; W. H. Coates, London; W. J. Mulvey, Bishop's Auckland; A. E. Macgillivray, Banff; "An Aspirant for the Fellowship"; A. C. Rolls, Arundel; G. Gray, Bakewell; W. Broughton, Leeds; J. Gerrard, Market Deeping; T. Hopkin, Manchester; G. Carless, Worcester; A. H. Santy, Norwich; P. Walker, Halifax; T. Greaves, Manchester; J. Rowe, London; B. C. Tipper and Son, Birmingham.

BOOKS: *E. Déle*, De la Consommation de la Viande des Bêtes Bovines Tuberculeuses; Contributions to the History of Medical Education and Medical Institutions in the United States of America; Referat betreffend die Verbreitung der Ansteckenden Thierkrankheiten im III. Quartal, 1877; *A. F. Vachetta*, Elimenti di Patologia Chirurgica degli Animali Domestici; Medical Etiquette.

JOURNALS: *Revue Vétérinaire; Archives Vétérinaires; Der Thierarzt; Archiv. für Wissenschaftliche und Practische Thierheilkunde; Wochenschrift für Thierheilkunde und Viehzucht; Journal de Médecine Vétérinaire et de Zoötechnie; Annales de Médecine Vétérinaire; Animal World; Medical Press and Circular; Lancet; American Live Stock Journal; Repertorium der Thierheilkunde; Recueil de Médecine Vétérinaire; North British Agriculturist; Archivio di Medicina Veterinaria.*

NEWSPAPERS: *Melbourne Leader; Turf, Field, and Farm; Agricultural Gazette; Farmer; Mark Lane Express; Broad Arrow; Montreal Herald; Toronto Globe; Berrow's Worcester Journal; Sydney Town and Country Journal; Standard; Scarborough Daily Post*; *Army and Navy Gazette; Globe; Edinburgh Courant; Sporting Gazette.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal" Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

APRIL, 1878.

AZOTURIA.

BY A. C. ROLLS, M.R.C.V.S., ARUNDEL, SUSSEX.

VETERINARIANS seem generally to have agreed with Professor Williams's nomenclature of Azoturia, and have recognised his explanation of its nature as a reasonable and correct one. Until I had the pleasure of reading his "Principles and Practice of Veterinary Medicine and Surgery," the cases—few and far between—that had fallen under my notice I find described in my case-book as "congestion of the spinal cord from a too rich condition of the blood." On reading the article "Azoturia," I could not but at once admit the great probability of the Professor's views being right, and my very speculative ones wrong. Subsequent experience has led me to an entire agreement with those views, and I take the liberty of congratulating that gentleman on the successful addition which he has made to our disease list.

During my earlier years of practice I rarely met with cases of Azoturia, but during the last four or five years they have considerably increased. This increase seems closely connected with the large importation of French draught-horses which has taken place along the southern coast of England. Speaking generally,

I may say that 99 per cent. of my cases have been French horses imported some few months previously. All the cases I have met with, except the two I am about to describe, are identical in so far as both hind-legs were affected. The last two cases met with were only affected in *one hind-leg*.

I. December 20th, 1876. A very fine grey horse (French), the carter's favourite, and which had only occasionally worked during the few previous weeks, was put to draw a cart laden with a few hurdles. He had not gone far when the carter thought he shuffled about with his hind-feet very much. He then went short, and finally stopped dead lame in the near hind-leg. His breathing became hurried and anxious; he broke out into a copious perspiration about the body and fore-quarters, but not on the hind-quarters. He was at once removed from the cart and taken to the stable, where he repeatedly fell, but managed to rise again. He appeared to be in internal pain, and scraped, pawed, and rolled about. No loss of appetite present. No relief following the administration of two colic draughts, I was telegraphed for.

I found the following symptoms present: Pulse 60, small and rather weak; ears warm; remains of perspiration about the body and fore-parts. The near hind-leg is resting, and scarcely the slightest weight is borne on it when the horse is made to move. There is no difference in the temperature of the hind-legs. Nothing abnormal can be detected about the terminal branches of the posterior aorta by rectal examination.

The bladder is empty; the horse scrapes, paws, lies flat on his side, and tries to roll over. The appetite is not affected; he eats food when offered.

Treatment.—An ordinary aloetic physic ball, and the usual diet. Instructions left with the carter, if possible, to catch some urine when passed.

21st. Decidedly better; bears more weight on the hind-leg. The sample of urine caught showed the dark-brown appearance usual in the *early* stages of this disease. The horse rapidly recovered. He has performed usual work since, without experiencing another attack.

II. February 2nd, 1878. A grey mare (French), in good con-

dition, on full allowance of corn, although lately doing but little work, was taken from the stable to help draw a threshing machine home. She had not gone far when she was seized with great lameness in the near hind-leg, and was in that condition removed to the stable. Here, in addition to the loss of power in the hind-leg, symptoms of considerable uneasiness appeared—scraping, pawing, etc.—which induced the attendants to give a colic draught, after which she seemed somewhat relieved.

When I examined her on the following morning I found her resting her near hind-leg; when forced to walk the leg seemed utterly useless, only the very slightest amount of weight being borne on it. The muscles of the leg seemed relaxed rather than otherwise. The ears and extremities were warm. There was no difference in the temperature of the hind-legs. Nothing abnormal could be found about the terminal branches of the posterior aorta, and no pelvic injury could be discovered. Pulse 70, rather weak; conjunctiva much injected. The carter reported that the urine after the attack was extremely dark-coloured. I removed some urine for examination, when I found it presenting the reddish-brown colour characteristic of this disease.

Treatment.—A physic ball, and the usual diet.

Feb. 3rd. Considerably better; stands on the leg; pulse slower and stronger; conjunctivæ still injected; urine natural in colour. Restricted diet for several days. The mare was then sent to work, and has since had no more attacks.

IMPERVIOUS VAGINA IN A HEIFER.

BY GEORGE GRAY, M.R.C.V.S., BAKEWELL, DERBYSHIRE.

THE subject of this case was a three-year-old cross-bred heifer, colour white, the property of a butcher in the neighbourhood. He bought her at a fair in Lancashire on April 20th, 1877. She arrived here on May 1st, apparently in good health, and was turned out on very good pasture, with a few more heifers, to fatten. About the middle of June she was observed to be in œstrum. Two days later she began to strain a good deal, but

the owner being from home, little notice was taken of her. However, when he returned he had her taken up from pasture, and my attendance was immediately requested, on June 18th. I found her straining very severely. The owner was certain that there was a dead calf in her. I proceeded to examine her by passing my hand up the vagina; but about three inches beyond the vulva I found the canal completely impervious. I withdrew my hand, and passed it up the rectum, and could then feel the uterus very large. Suspecting what I had got to deal with, I advised the owner to slaughter her, seeing she was in very good condition. This he assented to do, promising to keep the uterus for my inspection.

I called next day to examine this organ, and was rather surprised to find it so large. Its outline, externally, reminded me of a two-gallon jar, though it was not quite so large. Unfortunately, when they removed it they had, to my great disappointment, cut off the left ovary. On laying open the uterus, by making a longitudinal incision through the walls (which were thinner than natural), a large quantity of fluid (more than a gallon) escaped; this had the colour of chocolate. The uterus contained nothing else. After washing it out, I made a careful examination of the mucous coat, thinking to find some traces of recent or remote inflammation; but nothing abnormal was to be seen, with the exception that it was slightly paler than usual. The mucous membrane of the right cornu showed traces of ulceration.

The left cornu was healthy, as was also the right ovary. The left ovary, for the reasons stated, I did not see. My researches were then directed to the *os*, which presented a peculiar feature in not entering the uterus at the extreme posterior point of the organ, as might have been expected, but about four inches up the left side of the body; it looked more like a cicatrix from some injury or ulcer, than a natural *os*. It was irregular in its outline, and in the centre I found a small opening sufficiently large to admit a silver probe. This opening became lost in the vagina, which was completely impervious from the urinary *meatus* to the *os*.

Remarks.—Had the history of the heifer been known, this case

might have been of great physiological importance, inasmuch as it might have borne conclusive evidence in favour of menstruation in the lower animals. It is mere conjecture as to how the vagina became impervious. I am of opinion that it was not congenital, because on laying open the vaginal canal the tissues had a cicatrised appearance, with traces of inflammation and ulceration; and, as a sequence, new formations. I at first considered it due to abortion—the vagina and *os* having been lacerated during labour; but if we accept this hypothesis, we should expect that it would be much oftener met with. I have seen a number of cases of laceration in difficult labour, but never saw impervious vagina follow. Judging from the lesions in this case, I think it more than likely that it resulted from Gonorrhœa, the ulceration producing stricture of the *os* and vaginal canal, with ultimate adhesion, from the enlarging uterus being pressed backwards by the stomach and bowels, thereby keeping the ulcerated surfaces in constant apposition. Probably the Gonorrhœa had extended into the uterus, and left the mucous membrane in a weakened condition (as it frequently does). In this state the retention of the catamenial flow acting as an irritant, would set up an abnormal secretion, dropsical in its nature; and hence the immense quantity of fluid already referred to.

ULCERATIVE ENDO-CARDITIS IN A COW.

BY W. J. MULVEY, M.R.C.V.S., BISHOP'S AUCKLAND, DURHAM.

By train I have forwarded to the Brown Institution a heart, which, on February 2nd, I removed from a heifer eighteen months old, and to which I should like to draw your attention.

The history of the case is as follows:—On Sunday, 27th ult., Mr. Joseph Fryer, Smelt House, Howden-le-Wear, called at my infirmary, stating that he had a heifer somewhat out of sorts, the bowels not having been opened for two days. He wished me to give him a dose of medicine for her, stating at the same time that he had on the previous day given her six ounces of

Epsom salts, with ginger, etc. He had also since given her linseed oil. I gave the following,—

℞ Am. Carb. . . . . ℥ss.
P. Zingib. . . . . ℥ss.
P. Sodæ Carb. . . . . ℥ss.
Inf. Gent. . . . . ℥j.
Aqua ad. . . . . ℥xij.

and desired Mr. Fryer to let me know if she was no better in the morning, when I would see her. On the Monday I visited her, towards night, and found her presenting the following symptoms: Pulse small and increased in number; horns, ears, and extremities cold; an occasional slight grunt; breathing hurried, nose dry, no appetite whatever, and occasionally straining herself. She had just before my arrival voided a considerable quantity of what were apparently sloughs from the mucous membrane of the intestines. I diagnosed the case as being one of complicated disease of the true stomach and bowels, and gave my opinion accordingly, ordering her to be removed from the byre into a warm loose box, clothed, well bedded, and made comfortable, and to have two or three quarts of strained linseed tea administered every four hours. I gave the following,—

℞ Sodæ Carb. . . . . ℥ij.
P. Zingib. . . . . ℥ij.
Inf. Gent. . . . . ℥iv.
Ol. Lini ad. . . . . ℥xij.
(A fourth part three times a day.)

On Tuesday, there was no improvement. I gave the following,—

℞ Chlorodyne . . . . . ℥iij.
Inf. Gent. . . . . ℥j.
Aqua ad. . . . . ℥vj.
(To be given at night.)

Also sent,—

℞ Liq. Amm. Acet. . . . . ℥vj.
Spts. Æth. Nit. . . . . ℥iv.
Inf. Gent. . . . . ℥iv.
Aqua ad. . . . . ℥xvj.
(A fourth part three times a day.)

On Wednesday the respiration was more hurried and the grunting more frequent, although the bowels had been slightly

opened. There was no appetite whatever. I ordered the gruel and general treatment to be continued, and gave,—

R Chlorodyne	℥j.
Inf. Gent.	℥ij.
Aqua ad.	℥xij.

(One-half to be given night and morning.)

On Thursday I saw her in the morning, and thought there was a slight improvement. She had eaten a small quantity of hay, and looked about her a little more lively; and a fair quantity of fæces had been passed, but they were pale and clay-like in colour. The treatment was continued, and I did not see her again until Saturday morning; when I found she had died immediately before my arrival. The hind informed me that they had thought her somewhat better until just before she died,—that event taking place quite suddenly. She had fallen down and died as though suffocated. I noticed that there was considerable œdema in the intermaxillary space and all down the neck.

The *post-mortem* examination, which I made at once, revealed the following alterations: On removing the skin, large effusions of serum were noticed, extending from the head down the neck to the chest and both sides. On opening the thorax, the lungs were found to be perfectly healthy; and on cutting into the pericardium, a large quantity of serum escaped, although the membranes themselves showed no signs of disease. The heart, as you will perceive, is pallid and flabby in appearance externally; and on cutting through the walls of the right side into the auricle and ventricle, the tumour to which I wish to draw your attention was perceived. You will notice that it almost, if not entirely, closes the auriculo-ventricular opening, and is altogether of so uncommon a character that I have thought it worth sending for your inspection. On continuing the *post-mortem* examination, the liver was found much enlarged and easily broken down, the rumen fairly full of well masticated food, reticulum healthy, omasum the same, although the ingesta between some of the leaves was rather dry. The abomasum was almost empty, with the exception of a small quantity of coffee-coloured fluid; and the mucous membrane was inflamed

throughout, as also were the small intestines. The latter contained a large quantity of effused serum. The appearance, therefore, of the true stomach and bowels bore out entirely my diagnosis; and to the inflammation existing in these parts I attribute the immediate cause of death, and cannot myself trace any connection with the tumour existing in the heart, either in the symptoms shown during the illness of the animal, or in the other *post-mortem* appearances. If you think the case worthy of notice, I should much like to have your opinion on it.

[Professor Duguid, who examined the heart so kindly forwarded by Mr. Mulvey, gives the following notes:—

"The tumour referred to by Mr. Mulvey was situated in the right auriculo-ventricular opening, and chiefly attached to the large segment of the tricuspid valve. When viewed from the opened auricle, it closed the passage into the ventricle so completely, that the flow of blood past it seemed to be almost impossible. On the surface it was tolerably firm; but when divided, the centre of the mass was friable and easily broken up. The tumour was of a dirty grey colour, and measured 1½ by 1⅝ths inch; the mass when removed weighed nearly two ounces. On examination, it proved to be composed of successive layers of fibrinous deposit attached to the ulcerated surface of the valve. The large segment of the tricuspid valve presented, along its margin, an ulcerated surface of dense tissue, measuring 1⅛th inch in thickness by 2⅛th inches in length. The other portions of the valve were covered with granular vegetations and adherent fibrinous deposits, as were also the *carnæ columnæ* and some portions of the walls of both auricle and ventricle. The pulmonary artery and valves were healthy. In the left ventricle several small spots, especially on the *carnæ columnæ*, were the seat of considerable thickening of the endocardium; and at these points, and also on the surfaces of the mitral valve, there was a distinct granular and roughened condition of the surface. The pathological changes in this case mark it as one of true ulcerative Endocarditis."]

RABIES CANINA TREATED BY CURARA.

BY T. HOPKIN, F.R.C.V.S., MANCHESTER.

THE particulars of the case of Rabies mentioned by Mr. Taylor in the last month's *Journal*, are as follows. On Thursday, January 3rd, the dog—a spaniel noted for sagacity, was noticed by his master occasionally to drop his lower jaw, refuse his food, and look ill. This was attributed to his having taken cold, through having been out all night on December 26th. Much to the owner's surprise, on the evening of that day, while he was standing at the door, the dog went out and could not be recalled; in the morning he was found wet, muddy, and tired, lying on the doorstep. He continued to become worse after the first symptoms noted on the 3rd, until they brought him for us to see on Monday, the 7th, when he exhibited well-marked symptoms of Rabies in the "dumb" form.

In consequence of his tractable disposition, it was decided, with the permission of the owner, to try the subcutaneous injection of "Curara." This we accomplished on the following morning, Tuesday, the 8th, in the presence of Mr. Taylor, as stated. His sufferings were not, however, so far as we could judge, alleviated in the smallest degree; and death ensued about noon on Wednesday, the 9th, or a little over twenty-four hours after the first injection. Many circumstances in this case prevent us from claiming it as a fair trial of the curative effect of curara in Hydrophobia and Rabies.

Firstly, the dog had been bitten many times; and although we cannot say which of the bites inoculated him, we shall be justified in concluding that his nocturnal ramble was one of the primary symptoms. This occurred thirteen days before the first injection, and well-marked positive symptoms were observed five days before recourse was had to the treatment.

Secondly, the curara was not dissolved for two days, according to the directions of those recommending its use.

Thirdly, the system was weakened by his not being able to swallow any food or liquid; the smallest quantity bringing on the most violent paroxysms.

No doubt, in this, as any other disease, remedies, however efficacious, will require supplementing by other favourable conditions. The great question, so far as observation in this case is concerned, is as to whether it relieves the paroxysm or spasm; and the answer must be in the negative.

While on this subject, I may mention a circumstance in connection with a case I had last night. A black retriever, which we were called in to see, was suffering from the furious form of Rabies. He was tearing the skin off the right fore-foot, which foot, we were informed, had been run over by a cab some two years ago; and, indeed, he had been under our treatment for many weeks. So far as the owner knew, he had never been bitten on that foot. The query is, Was the foot the seat of inoculation? or was it a case in which the nerves in the seat of the old injury were in any degree more susceptible to the action of the poison?

TWO CASES OF PUNCTURE OF THE INTESTINE IN FLATULENT COLIC.

BY ALEXANDER GUNN, V.S., BALLOAN, BEAULY, N.B.

HAVING read, with much interest, several cases in the *Veterinary Journal* of the successful treatment of Flatulent Colic in the horse by puncturing the intestine, and having had a few cases under my charge which, by the ordinary line of treatment, I could do little for in removing the urgent and distressing symptoms, I determined, when the first case came under my care, to have recourse to the trocar and cannula, and now beg to submit a brief sketch of two instances in which I punctured for Flatulent Colic, and would be glad if you give it space in your valuable periodical, should you deem it of sufficient interest. The particulars are as follows:—

On the night of the 14th October last, I was requested to attend a Highland pony-mare. The owner said the animal was very ill with Colic, and wished my immediate attention. After a drive of nine miles I found the animal standing in a shed, and

presenting the following symptoms: Pawing with the off fore-foot, now and then taking a turn round the shed, pawing alternately with both fore-feet, kicking the belly with the near hind-foot, and looking round towards the left flank.

On making a minute examination, I found the breathing was accelerated, the nostrils dilated, pulse small and 64 per minute, visible mucous membranes injected and of a livid hue, temperature 102$\frac{2}{5}$ths° Fahr., extremities cold, cold sweat on neck, shoulders, and flanks, abdomen much distended—more particularly towards the right side, which on percussion emitted a tympanitic sound. A drench was administered composed of ol. lini. Oss. *cum* tinct. opii ℥iss., ol. terebinthæ ℥i *et* tinct. zingib. fort. ℥i; after which the abdomen was fomented with blankets dipped in hot water. This treatment only afforded temporary relief, as the animal began in a short time to show signs of increasing distress, the face looking haggard, and the pulse being scarcely distinguishable. Gave ammonia carb., ℥iss in bolus, removed fæces from rectum, and had enemas of ol. terebinthæ thrown up at intervals; but this treatment did not give any relief, the poor animal still wandering about and the symptoms becoming more aggravated. The abdomen was much distended; and on pressing the iliac region with the fingers, the abdomen was hard to the touch, owing to the tense state of the abdominal muscles. Being so far from home, and not having a trocar with me, and fearing the animal would not live until I could send for it, I asked my employer, who was a sheep farmer, if he had a trocar and cannula for "Sturdy" in sheep. He answered in the affirmative. Having procured it, I at once had the animal placed with its left side against the wall, and got an assistant to hold up the off fore-leg, while a second man kept the pony close to the wall. The right iliac region being most prominent, I removed a small portion of the hair therefrom, and all being ready, I pressed the trocar into the intestine with a little force. The trocar being removed, the gas could be heard rushing out through the cannula with a hissing sound. Having satisfied myself that the gas had entirely escaped, I ordered the animal's leg to be liberated; that being done, she looked at her flank, and shook herself, as if glad at having got rid of some

burden. I did not notice any sigh of relief in this case. Eleven hours had elapsed since the animal was first noticed to be unwell. I ordered it to have a little hay and chilled water, with an ounce of pot. nit. dissolved in it, until I called again to see her. Being pressed with business, I did not see her until the third day after the operation, when I found her quite lively, and the wound healing—in fact, there was every appearance of a successful operation. I left strict injunctions that if she refused food, or showed any signs of pain, I should receive word without delay. It was not until a fortnight after this that the owner called on me, and said the mare was as well as ever ; this news gave me much courage for a future trial, if I chanced to meet with a similar case.

The second case was that of a valuable five-year-old cart-mare, which I was called upon to attend on the 27th December last, and reported to be much "hoven," and suffering from severe "Gripes." On arriving at the place, about 4 p.m., I was told she had been employed during the early part of the day in carting Swede turnips. Having made a minute examination of the animal, I found her mouth full of thick, brown, ropy saliva ; and on removing some with the hand, noticed that it contained a quantity of sand ; on seeing this, the owner told me the driver had allowed her to eat the turnips off the drills during the time the cart was being filled. The first symptoms of illness were noticed at 11 a.m., when being led into the stable ; and on my first seeing her she was throwing herself about and kicking furiously. It was only after a subcutaneous injection of morphia that she could be properly examined,—when her pulse numbered 88 ; the nostrils were dilated, eyes staring, and mucous membranes of a purple colour ; the abdomen was much distended, and there was profuse perspiration over the whole body. The symptoms being so very urgent, I at once decided to puncture, and had a twitch put on her, as she was vicious, and it was necessary to have her under control. As in my first case, I chose the right side, midway between the anterior spine of the ilium, and last rib and transverse process of the lumbar vertebræ ; then removing a little of the hair with a curved scissors, I punctured the most prominent part of the distended abdomen. The animal being liberated, the deep inspiration, as

mentioned by Mr. Harthill, was well marked in this case. I ordered the mare to be sparingly fed on corn and a little hay, and chilled water to be given, with an ounce of pot. nit. dissolved in it daily. I avoided giving any laxative food, to allow the overtaxed bowels as much rest as possible; and fearing any untoward results, I had her carefully wisped and a rug put on her. I then left her for the night, leaving strict directions to give me notice if she showed any return of pain. I again saw her next morning, and found her quite well, with a pulse numbering 48, and the wound in the iliac region almost imperceptible.

Both these distressing cases did well, and I can confidently say that they were permanently cured by the operation of puncture.

The trocar and cannula I used in the last case were specially made by Messrs. Arnold and Son, London. The length of the cannula, which is of silver, is three and a-half inches, and the diameter one-eighth of an inch, with two or three holes near the extremity to permit the escape of the gas, should the end become filled with ingesta.

ABDOMINAL DISEASE AS AFFECTING HORSES IN INDIA.

BY A. E. QUERIPEL, M.R.C.V.S., ROYAL HORSE ARTILLERY, UMBALLA, INDIA.

THE severity of cases of this nature, and the great mortality arising therefrom, have induced me to forward you the following remarks, with a view of endeavouring to cause others to offer their opinions on the subject—feeling certain, as I do, that they will prove of great interest to all your readers in India.

Diseases as affecting the abdominal viscera call forth, on the part of veterinary surgeons in this country, more care than any other class, if we except epizoötic affections; were it in the power of any one to ascertain the cause or causes in operation to bring them about, a great boon would accrue to the profession

at large. Why the troop horse is so liable to Colic, has for a long time been a question difficult of solution; until the causes are clearly defined, we cannot, I fear, claim exemption from its serious effects, although we may, by judicious stable-management and careful feeding, lessen the cases both in number and severity. As will be seen by the following statistics, more than fifty per cent. of the deaths during the past year were attributable to abdominal disease.

Diseases.	Admissions.		Deaths.		No. of deaths in both Batteries from all causes.
	E Bat., A Bde., R. H. A.	F Bat., A Bde., R. H. A.	E Bat., A Bde., R. H. A.	F Bat., A Bde., R. H. A.	
Colic, Spasmodic	25	30			
,, Flatulent	1	1			
Ruptured stomach	1	4	1	4	
,, intestine	1	...	1	...	12
Strangulation of do.	...	1	...	1	
Totals	28	36	2	5	

Some of these appeared as isolated cases; but a sudden outbreak took place in the month of July, when three horses died in one week. The average age of the horses that died in these batteries averaged $11\frac{5}{12}$ years. I mention this fact as likely to throw some light on the subject, as my experience in this station would point to the circumstance that deaths from this cause ensue more especially amongst old horses, and also amongst those whose constitution has been impaired by other diseases. Included in the number that died during the past year were one of 5 and two of 8 years. Two of these were young "Walers" that never recovered from an attack of Fever of a low type, which was clearly attributable to climatic influence; whilst the third was a thriftless old animal. In the old horses, I have no doubt, from the fact of the *post-mortem* examinations disclosing disease of long standing and disintegration of the coats of the stomach, that the intestinal organs were greatly impaired, that constitutional causes must be looked upon as having been in operation to bring about these lesions. At the present time, Umballa is suffering from another outbreak of a similar character. In one battery alone, three deaths have taken plaee; and although

none have occurred in the other battery, still cases of great severity are daily admitted into the infirmary.

Not only on this occasion has the disease appeared amongst troop horses, but private horses are now similarly affected. Some cases have been brought under my care, two of which were in a dying state when I first saw them, but in addition to these I am informed that three others have died.

To successfully combat a disease, it is necessary to ascertain the causes which lead to its development; the more one endeavours to attain this end, the more one finds how impossible it is. With reference to the outbreak which occurred in July, the cause was—and will, I fear, ever remain—to me a mystery. No change whatever had been made in the watering or feeding of these horses; neither was there any variation in the temperature at that particular time; the minimum being 89° Fahr. and the maximum 102° Fahr. Gram, which in India is a frequent cause, owing to its bad quality, cannot be looked upon as the cause, for at this period it was exceptionally good. During the outbreak I recommended two changes to be made—viz.:

1st. That barley, parched and ground, should be substituted for half the gram previously given.

2nd. That the horses should be fed from the ground, instead of from mangers. Whether attributable to one or other of these changes, or from the two combined, I cannot say; but one thing is certain—that the number of cases was reduced, although the progress of the disease was not entirely arrested; and therefore we are bound to admit that other causes were in operation.

From the statistics above given, it will be seen that whilst the admissions in "F" battery were only slightly in excess of those in "E," the death rate was much higher; this, I think, can be satisfactorily accounted for by the fact, that the horses of the latter battery were younger and of much better constitution—the cases which were admitted being of a much milder type.

A *resumé* of the most important features in the *post-mortem* examinations may be somewhat instructive.

One case in which rupture of the colon to the extent of three inches had occurred near its sigmoid flexure—the stomach and

intestines were filled with food, from which a large amount of gas had been eliminated.

In three cases of Ruptured Stomach, the internal coat was found to be greatly ulcerated, whilst the middle coat was much attenuated; and in one case that died lately, the rupture was one foot in length. To such an extent had disease progressed, that the walls were easily torn by the fingers.

In another case, disease of the walls of this organ were only visible between the cardiac and pyloric orifices; through this part the coarse roots of grass had penetrated, allowing of the escape of the more fluid portions of the food.

Two points which may be gathered from the foregoing remarks, are, I think, worthy of further consideration.

The first is: Why should diseases of this nature assume an epizoötic type, as they evidently do?—for although we may never be said to be entirely free from them, still it will be seen that from time to time they visit us with great severity. A suggestion (but it must only be looked upon as such), which I would make, is, that these cases are due to climatic influence, whereby the functions of the liver are deranged. The first outbreak occurred in July, when the temperature in the stables reached 102° Fahr., and the present one when the temperature has fallen below freezing point. In both these extremes, diseases of the liver are frequent, and digestion is consequently impaired; fermentation of food and elimination of gas follow—and this, acting on the coats of a stomach already diseased, leads to a rupture of this organ.

This brings me to the consideration of the second point—viz., For what length of time can disease of the walls of the stomach exist without abdominal pain being evinced? My experience would lead me to believe that the disease (which must, I think, commence in sub-acute inflammation of the mucous coat) can be present for a lengthened period, without any one being cognizant of the fact; or, otherwise, how could the appearances noted above as having been found in *post-mortem* examinations be accounted for?

I trust I have not dilated too much on this subject; but being—as I feel it is—of such great interest to veterinary surgeons in

this country must be my excuse. I now leave it to your readers to offer any remarks they please, and to help us with their suggestions, which I need not say will be most welcome.

ANTHRAX AMONGST SHEEP IN THE HIMALAYAS

BY THE SAME.

THE article contained in the December issue of the *Veterinary Journal*, on "Anthrax in the Bavarian Alps," bearing such close relations as it does to a disease of this nature which I have lately been called on to investigate in the hill stations of the Himalayas, has led me to compile the following remarks, which may prove of interest to your readers.

The disease has appeared amongst the sheep at Ralka, which is at the foot of the range of these mountains; also at Rasauli, Solun, Dagshai, which are about 6000 feet above the level of the sea. From inquiries, it would appear that a similar outbreak occurred at Rasauli in the months of June, July, when 120 sheep were attacked, seventy of which died. During this period the sheep were removed into camp, about half a mile from the yards which they had previously occupied: owing to this change, the disease soon disappeared. They remained in camp about two months, and were again brought back. During the interval, the ground forming the floors of the yards had been removed, and the stables thoroughly disinfected. The flocks on their return presented a healthy appearance; but on the 20th November three cases occurred, and since that date about 100 admissions have taken place, and sixty-three have died. They have since been moved into camp, and the number of admissions has greatly decreased. The best sheep of the flock are invariably affected.

With reference to the outbreak at Ralka, it would appear that the sheep were sent to this place from Rasauli on the 12th of November, and that the next day one died. From that date the cases increased; and on the 5th of December the flock was moved to Solun, at which place the disease had assumed terrific proportions prior to my being called upon to investigate it,—in fact, at this station the flock has been decimated. Up to the

20th of December 139 deaths had taken place, and on that date the death-rate was twenty-two a day. The sheep included 400 that had been sent from Rasauli on 24th of November, two of which on arrival succumbed to the disease; also 453 sent from Ralka on the 6th of December, seventy-eight of which on arrival were affected.

The symptoms were as follows :—No premonitory indications. The sheep apparently well were suddenly attacked, fell down, and in many instances were unable to rise again. Face and surface of the body cold; respirations hurried; pulse so feeble as scarcely to be perceptible. In some cases there were sanious discharges from the nostrils. At Rasauli, Diarrhœa, accompanied by a discharge of blood, has been a constant symptom; but at Ralka constipation, on the contrary, was observed. In a few cases the disease assumed the apoplectic form.

The sheep in these cases were affected, as it were, with giddiness, and after turning rapidly round a few times, death ensued. The usual duration of the disease, however, was about six hours; but some cases of a milder type did not terminate fatally in less than two days.

The *post-mortem* examinations showed the blood to be of a dark purple hue and of the consistency of treacle. The skin was discoloured in places, and the flesh impregnated with black blood. The heart was soft and flaccid, but the spleen seemed to be the organ mainly affected. It was greatly enlarged, and the texture was so much altered that it was easily torn to shreds on being manipulated. In all cases, putrefaction ensued most rapidly; in one sheep that was kept for some hours awaiting my arrival, an enormous quantity of gas was accumulated in the areolar tissue. The meninges of the brain were highly congested.

The causes of this particular outbreak I would describe as follows :—

1st. *Predisposing.*—Bad quality of the forage, consisting, as it did, of dried-up innutritious grass, which is difficult of digestion. In addition to this, there may be said to be no grazing, owing to the almost total absence of rain during the summer months.

2nd. *Exciting.*—Bad drainage and faulty position of the

yards and stables. These are situated at the foot of the hill just below the native bazaar, and are therefore very liable to contamination; while the floors were so low in the centre that there really might be said to be no drainage.

The sanitary and precautionary measures which I had carried out, were devised with the following objects: that the sheep be kept in camp; no communication whatever to be allowed with men attending the stables or sick sheep; the sick to be immediately isolated from the flock, and confined to as small a space as possible; convalescent sheep to be removed from the sick, but not to be allowed to join the healthy flock within a less period than two months; the carcases of those that died to be burned, as I found that, owing to the nature of the soil, burial was impossible, and that they were thrown down a precipice and carried away by birds of prey. It was also arranged that the flocks were to be removed from the ground then occupied at Solun, and if possible that the flock at Rasauli should also be grazed elsewhere, as, owing to the small space of ground owned by Government at this station, isolation could not be properly carried out. It was likewise suggested that more nutritious fodder be given, and that the stables and yards be disinfected previous to the return of the sheep. These measures, together with medical treatment—which consisted of the administration of salines and stimulants—have had the effect of nearly eradicating the disease from the Rasauli flock; and I think that when put into force at Solun, the same beneficial results will be obtained.

From the above, it will be seen that the focus from which the disease radiated was Rasauli; but it might be asked, how was it that the disease made its appearance amongst the sheep sent from that station on the 12th of November, whilst it only developed itself at Rasauli on the 26th? To this I believe the reply would be, that the sheep were contaminated with the virus previous to being despatched, and that the exciting cause was the fatigue of the journey; as it will be seen that the same occurrence took place when the sheep were removed from Ralka to Solun, for although none but those which were supposed to be healthy were sent, still on arrival seventy-eight were affected.

In conclusion, I would remark that diseases of an anthracoid character are very prevalent in India, not only amongst sheep, but also amongst horses: affecting the latter in the form of "Malignant or Loodiana Fever"—the nature of which is always the same, although the disease presents itself in many forms.

Since writing the above, I have received a letter stating that the flocks from Solun and Rasauli have been removed to good grazing ground near Ralka, and that the death-rate is eight a day (including both flocks). This mortality is high; but considering that at Solun alone it was twenty-two, it will be seen that the sheep are deriving some benefit from the measures adopted. I am of opinion, however, that the death-rate would have been less had the two flocks been sent to different localities, and not brought together, as they seem to be at present. I would draw attention to the last paragraph of the letter above referred to, in which the writer states—

"We have now 300 sheep at Rasauli fed on gram, and among which there is no sickness."

These formed part of the affected flock; and it goes far to prove that one of the main causes operating in the development of the disease, was the bad quality of the food supplied for the sheep.

THREE NOTE-BOOK CASES.

BY C. H. HURRELL, M.R.C.V.S, SOUTHMINSTER, ESSEX.

CASE I.—A COMPLICATED CASE.

A GREY mare about ten years old, the property of Mr. Jackson, Dengie, up the time of her first being noticed unwell, was considered to be the hardiest mare on the farm. About a fortnight before we were called in to see her, she evinced lassitude, and her appetite was somewhat diminished. She was kept at work for ten days, and on a Saturday morning she was noticed to be in pain. A Colic draught was administered, and she seemed entirely to recover from the pain, and continued feeding a little.

On the Sunday morning she was found to be in pain again,

when they sent for us to see her. On arrival we found the mare apparently free from pain, and in a yard with the other horses. We had her put into a loose box, and on examining her we were much struck with the very pallid appearance of all the visible mucous membranes, they being almost as white as a sheet. We thought she might be suffering from internal hæmorrhage. Her breathing was increased and slightly laborious; pulse 62, and feeble. The animal was a good deal swollen about the body; the fæces were soft and very pale in colour. Administered gum opii *et* camph. ā ā ℥j, with a stimulant, and repeated a ℥ij carb. ammonia bolus every four hours; also left ol. lini. xij, spts. amm. arom. *et* spts. æth. nit. ℥ij, each, in case the pain returned. There was an apparent stiffness across the region of the loins, which was dressed with compound mustard embrocation. Warm clothing was put on; and scalded oats, bran, grass, hay, and gruel were to be given as diet. On attending early on Monday morning, I found the mare dead; I was informed that she all at once became worse about 9 o'clock on the Sunday evening, and manifested symptoms of intense pain. The mixture we left was administered, but she suddenly expired about 12 o'clock.

Post-mortem Examination.—On opening the abdominal cavity, about three or four bucketsful of water escaped; and along the whole floor of the cavity, and extending to a considerable height, the peritoneum was covered with a fibrinous exudate, as was also a small portion of the intestines. The liver had undergone fatty degeneration, and was very pale. Portions of the double colon were covered with very large petechial spots. On cutting open both kidneys, an abscess was found in the centre of each. There was a rupture of the diaphragm about six inches long; and on laying open the thoracic cavity, nearly or quite a bucketful of water escaped. The pericardial sac also contained from 12 to 16 oz. of fluid. The heart was large but soft, and the structure easily broken down. The lungs were healthy, but exceedingly pale.

The most surprising feature in the case was the almost total absence of blood. The only blood I could find was in the right auricle and ventricle of the heart, which were full, and in the veins of the head, neck, and fore extremity, where the veins

seemed distended with coagulated blood; none was found in either the thoracic or abdominal cavities; and when cutting through the posterior vena cava, nothing but a small quantity of thin blood escaped,—this looked like blood and water mixed.

I am at a loss to account for the changes which the *post-mortem* inspection revealed, and should like an opinion on the case.

Case II.—Ruptured Lung.

A valuable cart-mare, the property of Mr. C. Harvey, Foulness Island, whilst being engaged in assisting to remove an engine used for threshing purposes, in which great strength was required because of the bad state of the roads, was suddenly seen to fail in her pulling, and stopped. Her breathing was very hurried and laboured, and Epistaxis was taking place. She was immediately taken home; and Mr. Harvey, seeing how dangerously ill she was, and thinking she could not live long, did not send for assistance, as the distance was great. She died within two hours.

A *post-mortem* examination discovered all the organs healthy, with the exception of the right lung, which was torn nearly across its upper surface, so that one could have laid his hand in the rupture. As this is the first time I have heard of a ruptured lung, I thought it might be of interest to the profession to know whether similar cases of rupture have taken place before, and what is the cause.

I might mention that, about ten weeks ago, I attended this mare when she was affected with Influenza and congestion of the lungs, though not seriously.

[We cannot at this moment find an instance of rupture of the lung similar to that described by our correspondent. Extensive and sudden rupture of a large portion of the vesicular tissue, due to severe exertion, is not all uncommon, and gives rise in some instances to fatal Pneumorrhagia, but without involving the investing pleura in the laceration. Traumatic influences, such as fractured ribs, often produce serious lesions in the lung texture.—Ed. *V. J.*]

Case III.—A Lusus Naturæ.

I send you a drawing of the head of a foal which was prematurely born. The mare from which it was obtained was about eight months advanced in pregnancy. Both mouths and nostrils are perfect, as also are the superior and inferior maxillæ, the latter being joined together by ligamentous structure. It has three eyes, the middle one being larger than either of the other two, and situated where the bifurcation of the frontal bone takes place. There are two perfect parietal bones, and one placed between them appears like two parietals joined together. There is only one occiput and two ears. As we have not opened the head, we do not know if there would be a division in the brain cavities. On the same farm last year a mare foaled a dead foal, which had no brain cavity or brain substance. Both of these specimens are in our possession.

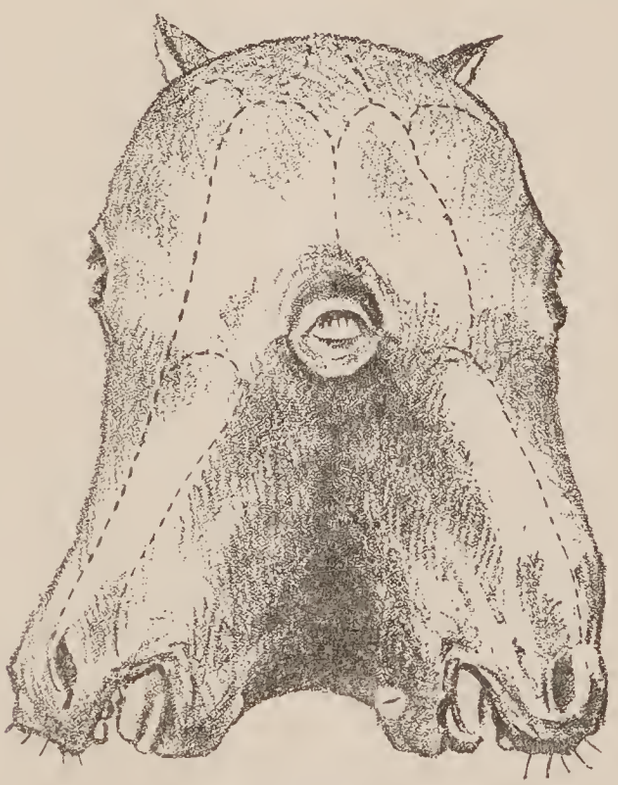

Fig. 2. Head of Monstrosity.

[The drawing evidently represents the head, or heads, of a Monosomian monstrosity—the *Dicephalus bi-atlanticus* of Gurlt, described at page 400 of "Veterinary Obstetrics." These monstrosities have only a single body, the duplicity generally commencing towards the neck, high up in the cervical region

and not unfrequently at the atlas—sometimes even as far as the facial region. Mr. Hurrell does not inform us on this point. It is to be regretted that these monstrosities are not presented to the R.C.V.S. for the museum.—ED. *V. J.*]

DEATH OF A MARE FROM HEART DISEASE.

BY R. MORETON, M.R.C.V.S., BURTON-ON-TRENT.

THE following case being somewhat unique, I venture to send you an account of it.

About the beginning of last December, I was sent for by John Darling, Esq., of Beaudesert, about eighteen miles from here, to attend a brown mare which had arrived from London the previous day. I found she was suffering from Pneumonia and slight hepatic congestion. I treated her accordingly, and in a fortnight or so she was convalescent; but after her recovery she never fed or drank well, which I attributed to want of constitution, as the mare was a very "light-barreled" one, and of a very fidgety nature—always biting at the wall or manger, and kicking when any one was near. Towards the 15th of February she was frequently swollen about the throat, the sub-maxillary space, and that part of the face occupied by the masseter muscle. These swellings quickly disappeared without treatment, but recurred in the space of two or three days.

On Saturday, the 23rd of February, the groom came to me saying the mare was very ill, having swellings along the floor of the abdomen, and when exercised that morning she appeared to be very weak and tottering—so much so that she was quickly returned to her loose-box.

On examining the mare, I found her very weak, dejected, and very quiet—an unusual circumstance for her—with swellings on the abdomen. These symptoms induced a well-known trainer in that neighbourhood, who had seen her, to tell me as I passed him that I should find it a very easy case, as it was "only her water." Upon auscultation, I diagnosed her to be suffering from very severe Heart Disease, but in what precise form I was unable to give a decided opinion, though I was certain she had

not many hours to live. I saw her for the last time that night at 11 p.m. (I was Mr. Darling's guest from that evening till the following Monday), when she seemed in very much the same condition, only that her extremities were icy cold. The following morning (Sunday), I was called at 7 a.m. with the news that the mare was much worse; I therefore hastily dressed myself, and went to the stables, where I found the mare stretched out on the straw in agony, frequently raising her head and looking behind the left shoulder (the position of the heart), with a mixture of mute agony and bewilderment on her face. Every now and then very severe and rapid convulsive twitchings attacked the fore-extremities. The mare groaned heavily and parted her lips frequently, showing her teeth, as indicative of great pain. She lived till 12.45 p.m., that day, each hour being more painful to her than the preceding ones.

On Monday morning I examined the mare *post mortem*, and found a good deal of fat external to and surrounding the pericardium; in the left ventricle were two flaps or curtains of fat (fibrin?) hanging downwards about $\frac{3}{4}$ths of an inch from the auriculo-ventricular valves. These flaps were in length about $2\frac{1}{2}$ inches, in breadth about 1 inch, and in thickness from $\frac{1}{8}$th to $\frac{1}{16}$th of an inch. The right ventricle contained numerous masses attached to the cordæ tendinæ, and varying in size from a pin's head to a horse bean; the cordæ being firmly imbedded in them, whilst in one instance the mass was movable, allowing itself to be moved up or down the cordæ it was surrounding.

On microscopically examining these masses, I found them to consist of fibrous tissue, no doubt formed from blood fibrin.

DEATH FROM ABDOMINAL SARCOMATOUS TUMOUR.

BY J. M. PARKER, M.R.C.V.S., BIRMINGHAM.

I HAVE this day sent to your address, "Brown Institution," a basket containing a morbid specimen which came under my notice at the knacker's yard.

It was taken from a cart-horse which died on Saturday last, after having been ill since the previous Wednesday night with symptoms of obstructed bowels. The owner came to me on Friday, but I was unable to go to see the animal.

The tumour was attached anteriorly to the diaphragm. I have seen one similar case before, which my friend Mr. M. Tailby sent to the Veterinary College for examination. No report, however, reached him from that establishment.

I am told that the present mass weighs upwards of 70 lbs.

[Professor Duguid reports as follows: "The tumour sent by Mr. Parker consisted of two large masses, partially separated by a deep sulcus. On the surface there were several smaller tumours, which at first sight gave the appearance of a multilocular cyst. It was solid throughout, but very soft and friable; a large quantity of serum flowed from the fresh-cut surface, and it had lost nearly 20 lbs. of its original weight from this cause. When examined under the microscope, it proved to be a spindle-cell sarcoma; and from its vascularity, and the abundance and size of the cell elements, it had evidently been of rapid growth. The whole of the mesenteric glands were more or less involved, but this seemed to be a secondary process; the starting-point of the tumour could not be readily made out. In what appeared to be the older and first-formed portions, no trace of any normal tissue remained. The chief symptom during life mentioned by Mr. Parker—viz., obstruction of the bowels—was accounted for by the fact, that a portion of the single colon was firmly bound down and partly surrounded by this abnormal formation."]

PRIZE FOR AN ESSAY ON HYDROPHOBIA.—The Royal College of Physicians is empowered to offer a prize of one hundred guineas on the subject of Hydrophobia. The Council has recommended, as general principles—1. That the prize be offered for an essay on the nature of Hydrophobia: its causes, prevention, and treatment. 2. That original investigations be regarded as of especial value in deciding on the merits of the essays; and 3. That the prize be not awarded unless an essay of sufficient merit be presented. The Council is authorised to lay down more in detail the points on which information is especially required.

Editorial.

THE FLESH OF DISEASED ANIMALS AS FOOD.

PERHAPS there is no more important question connected with sanitary or economic science, than that relating to the flesh of diseased animals as an article of food. Its importance has been recognised from the earliest times, and the use of such flesh has often been the subject of domestic legislation ; but it was only at a comparatively recent period that it began to receive marked attention, and it must be acknowledged that it is now a matter of the greatest moment. It has become so from the fact, that animal food is now more necessary than ever for the sustenance of civilized man—that it is consumed in far larger quantity than even less than a century ago—and that diseases among food-yielding animals are either on the increase, or the progress of veterinary science has enabled us to discover them when and where they were previously not suspected.

With the increasing demand for animal food has its market value become enhanced—its price being double or even treble what it was within the memory of the present generation. Any cause, therefore, which diminishes to a notable amount the quantity of this food, must receive—or at least deserves—careful consideration, as it is not only an individual but a national loss, in a pecuniary point of view ; while it may, more or less, deprive the poorer labouring classes of a most essential portion of their aliment. In this respect, those diseases which render the flesh of affected animals dangerous or unfit for food, or lessen its nutritive qualities, should command public attention, and receive more than ordinary notice from the sanitarian and social economist.

In those countries in which veterinary science has been most successfully and profitably cultivated, this subject has long been carefully considered, and we find that wise precautions have been adopted to safeguard the public ; while the carrying out of measures devised with this object has been entrusted to those who, from their special knowledge and training, can alone be deemed competent for this task—that is, veterinary surgeons.

In this country we have not yet reached so desirable a stage of civilization ; and our peculiarly insular notions—even in our own profession—as to the scope of veterinary science and the functions of its students, almost forbid us to hope that it will be reached before many years have elapsed and a new order of things inaugurated. Until within a few years ago, medical men were supposed, by those who controlled the veterinary profession in England, to be more capable of acting as teachers or examiners than its own graduates, and to be the fit representatives of the profession at Veterinary Congresses, the head of the Government Veterinary Department, and indeed to be the rulers, governors, tutors, and arbiters of the destiny of veterinary surgeons. After a long struggle, the profession has gradually emancipated itself from the somewhat humiliating state of dependence and pupilage imposed upon it by some of its own members, and it has begun to claim

a right to independent existence, from a well-founded consciousness of its fitness and worthiness to govern itself, and manage its own affairs. But it has still to struggle against the narrow-minded influence of those who would fain prevent it attaining its legitimate place and performing its legitimate functions.

With regard to the propriety of giving an opinion respecting the flesh of diseased animals as food, veterinary surgeons are now told that they are not called upon to usurp the functions of the meat-inspector, but are bound to oppose the idea that the consumption of diseased meat is sanctioned by sanitary laws. Now, we entirely demur to the notion that veterinary surgeons are not to usurp the functions of meat-inspectors—for if properly educated they are the only persons who can be entrusted with this most responsible and important duty, and this fact has been recognised in every European country, save and except our own. Sanitary laws are—or at any rate should be—founded, not on hypotheses or surmises, but on facts, observations, and the teaching of enlightened experience; and if these show that the flesh of animals which have suffered from a particular disease has been, and can be, consumed with impunity, so far as the health of the consumers is concerned, then sanitarians are bound to say so, and to frame laws accordingly, no matter what theorists may say to the contrary. We have more than ample proof, both of an accidental and experimental kind, that certain maladies—as Septikæmia, Anthrax, and Glanders—render the flesh, unless thoroughly cooked, very dangerous as food; while there is not a tittle of reliable evidence anywhere to be found that the flesh of animals which had been affected with Foot-and-mouth Disease, Infectious Pleuro-pneumonia, Cattle Plague, and some other febrile diseases, has ever produced the slightest injury or inconvenience —direct or indirect, immediate or remote—to those who partook of it.

Considering the wide prevalence, at times, of one or all of these maladies, and the pecuniary value of the diseased animals, it is a question of no mean importance whether it is justifiable or necessary to condemn, as unfit for human food, the flesh of creatures suffering from them; and this question should not be decided on mere theoretical or sentimental assumptions, but on the teaching of everyday experience. We do not deny, and indeed we are ready to admit, that such flesh, if innocuous, may yet possess less nutritive value than that of healthy animals in good condition; but this is quite another matter. We know that certain diseased conditions, accompanied by fever, are artificially produced in animals in order to render their flesh more palatable, and nevertheless no harm results from its consumption. Sanitarians have no business to pander to prejudice, which is generally most unreasonable; and though prejudice is usually strongly opposed to the use of the flesh of diseased animals as food, yet a distinction must be drawn between flesh which may be hurtful and that which is positively harmless, and the sale of which—at a reduced price, if need be—is an advantage to the community.

The subject of meat inspection comes specially within the domain of veterinary sanitary science, as we have for years pointed out and

insisted upon. From their training and experience, veterinary surgeons should be far more competent to advise upon or give an opinion as to the nature and quality of flesh, and, if diseased, the character of the disease, than other persons.

There can be no doubt whatever that an enormous quantity of diseased and dangerous meat is disposed of as food in this country, and almost without risk of detection,—for it is only by chance that a seizure is now and again made. Quite recently, an inquest was held in West Kent on the body of a butcher, who died from blood-poisoning, through dressing the carcase of an ox which had, there is every reason to believe, been affected with Anthrax, and the carcase of which had been sold for food. This disease is not at all uncommon among cattle, and it is to be feared that many of the animals fall into the hands of the butchers. It is customary to kill animals which are suffering from grave disorders—among them Septikæmia or Parturient Fever—and send their carcases to the meat market. And even when the disease has not made the flesh dangerous, it may happen that it is rendered poisonous by the medicines administered before the animals were slaughtered. From the evidence which crops up at intervals, and from what we hear casually, there is much to lead us to believe that an extensive trade is carried on in diseased meat.

It is somewhat remarkable that we rarely, if ever, hear of meat infested by worms being seized as unfit for food; and yet we know that animals in this country harbour to a considerable extent the germs of verminous diseases, which may produce serious disturbance in people who eat their flesh,—we may mention Tape-worm and Trichinosis. To detect these germs in the bodies or carcases of animals requires the special knowledge of the skilled veterinarian, whose province it is to study them and their effects in the creatures they primarily infest.

In conclusion, nothing in sanitary science more deserves the attention of a paternal government than this question of a healthy meat supply; while the institution of public slaughterhouses—especially in our towns and cities, which are at present the convenient and chief receptacles of diseased flesh—should be persistently demanded. In these alone the public can be assured as to the condition of the flesh they consume, the animals being inspected before and after slaughter by an expert; and our daily increasing knowledge of the diseases of animals, and their influence on flesh, could there and then be applied with the most beneficial results. In this direction, veterinary sanitary science can confer benefits of no mean kind, and we shall continue to hope that we may see the day when veterinarians will be solely entrusted with the duty of protecting the health and interests of the community in the matter of meat inspection. It is perhaps as blameable to condemn all flesh from diseased animals as unfit for human aliment, as it would be to allow all such flesh to be exposed for sale. Such, at any rate, would be the verdict arrived at by any one who cares to examine the scientific evidence which is now before us; and it is for veterinarians to prevent needless loss, while guarding against possible risk of inconvenience or danger to meat consumers.

ON CHINESE HÆMATOZOA.

BY PATRICK MANSON, M.D.

(*Continued from page* 121.)

I CONCLUDE, therefore, that beyond perhaps difficulty in swallowing, produced by the mechanical action of a Filaria tumour in the œsophagus, there is no reliable symptom by which *Filaria sanguinolenta* can be detected during life. If the fæces were carefully searched, and perhaps the urine also, eggs might be found, and constitute certain evidence. Again, as to the habitat of *Filaria sanguinolenta*, I have found specimens embedded in characteristic tumours in the walls of the thoracic aorta, in the walls of the œsophagus, in the loose cellular tissue in front of the latter, and in the pleura ; never elsewhere. The lesions it produces are very characteristic. On opening the thorax of an affected animal, and drawing the heart and left lung over towards the right side, the straight part of the thoracic aorta may be seen to be studded with small tumours, ranging in size from a small pea to a bean, and the anterior and lateral surfaces of the œsophagus bulged out by tumours perhaps as large as a walnut ; and where several of these are in juxtaposition, a large lobulated tumour may conceal the œsophagus altogether. To the touch these tumours are hard, though at points there may be a feeling of deep fluctuation. If the aorta is excised and split open, its inner surface is found, at the points corresponding to the tumours on the outside, to be more or less deeply sacculated, the inner coat roughened, and the outer coats thickened. In the latter, worms at different stages of development (I have not found them very large in this situation) may be found, or perhaps the sacculation and external bulging may only be evidence that a worm had once been there, but has disappeared. When the worm has reached a certain stage in its development, a minute orifice can be seen on the inner surface of the tumour, communicating with the cavity containing the animal. Through this hole a purulent-looking fluid can be expressed ; this, on microscopic examination, is found to be loaded with characteristic ova, and cells resembling those of ordinary pus. The tumours in the œsophagus occupy the muscular wall, and generally are much larger than those of the aorta. On the inner surface of the œsophagus a small hole is, as a rule, to be seen—perhaps several—communicating with the cavity of the tumour, and through this the purulent egg-laden fluid can be easily expressed ; sometimes, and by no means rarely, part of the mature filaria protrudes through this hole and hangs loose in the channel. I have found, connected with the œsophagus, mature tumours embedded as I have just described in the muscular walls, similar tumours cretified and enclosing fragments of a long dead filaria, small pedunculated tumours of filarian origin projecting into the channel, and long tunnels burrowing between the coats, in some part of which a parasite can be found. In addition to these, the more frequent situations, the animal may be found in large or small glandular-looking lumps in the areolar tissue of the posterior mediastinum, or encysted between the costal and pulmonary pleura. In all these situations I have found them, and all in the same dog. When small, the parasite is found alone, closely invested by the peculiar tissue it seems to create around itself, lying as it were in a tunnel ; but when mature, it is found loose in a large tumour, in company with one or more (eighteen I found in one instance), all encapsuled in a common and perhaps cretified cyst, and floating in a purulent fluid.

The mature female worm measures from three to four inches in length by about one-sixteenth of an inch in breadth ; the male is shorter by an inch or more, and can be distinguished from the female by the simple incurvation

of the tip of his tail. The colour in both sexes is a dark pinkish-red. Rolled between the fingers, the body is found to be firm and hard, and when stretched yields, but does not rupture readily. The *Filaria sanguinolenta* exhibits similar movements to the *Filaria immitis*, but it is more active.

The coverings of the mature *Filaria sanguinolenta* are two : the integument, a delicate, transversely-striped membrane ; and the fibro-muscular, consisting, as in *Filaria immitis*, of strong, coarse, longitudinal fibres.

The alimentary canal extends the whole length of the body. The mouth is placed at the very extremity of the head, and is easily distinguished from that of *Filaria immitis* by its six well-marked lips. These lead to a narrow pharynx, which expands into a straight and capacious œsophagus, about one-third of an inch in length, which terminates in the intestine by a valvular arrangement similar to that in *Filaria immitis*. From this point the alimentary canal passes, in company with the uterine or spermatic tubes, in a tortuous course towards the anus, before reaching which it expands considerably, to contract again as it opens finally on the surface of the body, some little distance from the extremity of the tail. The walls of the alimentary canal are muscular, and are kept apart in places by a dark granular material—the food of the animal.

The reproductive organs of the female resemble, in their arrangement, very closely those of *Filaria immitis*. The vagina opens near the junction of the œsophagus and intestine, and after a short convoluted course divides into the two uterine tubes. These expand, and running backwards and twisting round the alimentary canal at intervals, near the caudal extremity gradually taper down to fine ovarian tubules. The latter do not expand again, as in *Filaria immitis*, but preserve the same calibre throughout their whole length, winding round the alimentary canal and each other in a very intricate pattern. I have shown that the *Filaria immitis* is viviparous ; the *Filaria sanguinolenta*, on the contrary, is oviparous. I have not studied the various stages in the development of the ovum ; but, as observed in the purulent-looking fluid I have described as exuding from the mature filaria tumour, it is seen to be of a cylindrical form, the ends of the cylinder being rounded off. It measures about $\frac{1}{750}$th of an inch by $\frac{1}{1500}$th. The embryo is visible in most eggs, doubled up in the interior, and if a little pressure is applied to the covering slide, the shell can be burst and the animalcule expressed. As thus observed, the embryo measures about $\frac{1}{200}$th of an inch in length, and resembles in form that of *Filaria immitis*, though rather more truncated at the caudal extremity and exhibiting no movement.

As to the reproductive organs of the male, if the under surface of the tail is examined, two rows of papillæ are seen on each side of the orifice of the sheath of the spicules and the anus—four in front of them, arranged in two lines parallel to the long axis of the body, and two behind, placed obliquely. Viewed laterally, these papillæ are seen to have long pedicles. At the very extremity of the under surface of the tail is a clear space shaped like a rose-leaf, and in the centre of this are two more, but very minute, papillæ. The penis is represented by two spicules, one very long, attached farther up the body than the other, the shorter. In the specimens I have examined, the spicules were retracted, but the delicate outline of a sheath could be traced to a common opening in front of the anus, through which they are, I suppose, protruded. The tendons of a retractor muscle can be seen attached to the deep end of each spicule. I could not make out the connexion of the *vas deferens* with the spicules and papillæ, but doubtless it exists. Traced upwards, a point is reached where the *vas deferens* contracts very abruptly and the testicle begins ; this extends to near the junction of the intestine and œsophagus, where the tube becomes doubled on itself, very much as in *Filaria immitis* ; only the doubling is much longer, extending backwards for nearly

half the length of the testicle, and when carelessly viewed, giving rise to the idea that the testicle, like the uterus, is double. The spermatic fluid I have not examined.

The mode by which *Filaria sanguinolenta* obtains access to the tissues is made sufficiently clear by an examination of the tissues it attacks. From its being found in and near the œsophagus, we are justified in inferring that the embryo is swallowed, that it attaches itself to the walls of this tube, pierces them, and buries itself in the muscular coat, where a fibrous covering is formed around it; or perhaps its journey is continued a very little farther, and it enters the walls of the thoracic aorta, or the posterior mediastinum. From all of these situations I have extracted specimens, varying in length from a few lines (in the immature animal) to upwards of three inches (in the pregnant female). Small worms are most frequently found in aortic tumours, and on this account I incline to think either that they do not often attain maturity there, or that they leave it for the more favourable situation of the œsophagus. Immature worms are single, and lie closely invested in their tunnels; the mature are always in company, sometimes in considerable numbers, and float loose in a fluid enclosed in a cyst. I infer from this diversity of arrangement at these two stages in the animal's history, that when the sexual organs have arrived at a certain point of development, the parasite resumes its perambulations, seeking out one of the opposite sex. In this way many are brought together, as, where once a track is formed, others, on coming across it, are likely to follow it. I have seen an œsophagus dissected in various directions by long tunnels, at the end of which I found a parasite. When the sexes come together the female becomes impregnated, a small aperture is formed in the cyst leading to the channel of the œsophagus or aorta, and through this ova are poured into the alimentary canal or circulation—the female, more certainly to accomplish this, sometimes protruding her tail through the hole.

Is there any connexion between *Filaria immitis* and *Filaria sanguinolenta?* Considering that both are very frequently found in the same dog, and intimately connected with the circulation, some might be tempted to suggest that they are of the same species, in different stages of development. But a glance at the physical characters of each is sufficient to establish the impossibility of this. I give below, arranged in the form of a table for the sake of the contrast, the principal points of difference.

	Filaria immitis.	Filaria sanguinolenta.
	Viviparous; active embryo $\frac{1}{100}''$ in length.	Oviparous; motionless embryo $\frac{1}{200}''$ in length.
Length . .	Never under six inches	Never over four inches.
Colour . .	Milky white	Reddish pink
Mouth . .	Simple	Six-lipped.
Male . . .	Corkscrew-like tail; spermatic tube tapers gradually to testicle	Tail, a simple incurvation; *vas deferens* ends abruptly by a constriction.
Female .	Uterus contracted abruptly to form ovarian tubes, which again expand to gradually taper to short terminal tubules	Uterus gradually tapers down to ovarian tubules, which are long, and do not again expand.
Habitat .	Venous system	Arterial system and alimentary canal.

I believe there are three serious morbid conditions produced by *Filaria sanguinolenta*:—

1. Stricture of the œsophagus, more or less complete. This most frequently occurs when several large tumours are formed, especially when they are grouped together near the cardiac end of the tube—the most frequent locality. Regurgitation of food and slow starvation will be the consequence, unless the tumours diminish in size by the escape of their contents or death of the filariæ.

2. Pleurisy. This is not uncommon in dogs here, and, I think, is often caused by the bursting into the pleura of a tumour which does not find vent for its contents by opening in the usual way into the œsophagus or aorta. I have found very distinct evidence of this occurrence in one instance. In it, worms were found crawling about amongst recent adhesions in the serous cavity.

3. Paralysis of the hind-legs. This is also common here, and is, I believe, caused by plugging of the capillaries of the spinal cord by ova escaping into the aorta. The brain is not affected, as the filaria tumours are seldom, if ever, situated on the cardiac side of the arteries proceeding to the head. Other affections are doubtless produced by the ova in the intestine, kidneys, and other viscera, but I have no knowledge of them or information to offer on this very interesting and important point.

Filaria Sanguinis Hominis.

The extent and importance of the part played by nematode worms in human pathology is becoming year by year more recognised. I have elsewhere pointed out the probable connection of a filaria worm with Chyluria and Elephantoid disease. The intestinal oxyuris and lumbricus are well known, as are also the *Strongylus gigas*, the Guinea worm, and the *Trichina spiralis*. The hæmaturia of the Cape, Egypt, and the Brazils is now acknowledged as depending on a similar parasitic cause, and I doubt not that, in time, many strange and at present unaccountable diseases of ex-European countries will be found to have a similar pathology; and I have described a peculiar and very prevalent form of stricture of the œsophagus I meet with in Amoy. Would not such a tumour in man, as I have shown is produced by *Filaria sanguinolenta* in the dog, account for all the symptoms of œsophageal obstruction that I therein described? Could such lesions as this filaria produces in the aorta of the dog give rise to aneurism were they to occur in man? The great frequency of aortic aneurism among Europeans in China, and the prevalence of filaria aortic disease in dogs in the same country, is a significant coincidence. Another of our domestic animals, besides the dog, is well known to be affected by a penetrating filaria in China: the worm in the eye of the horse, which most medical men in China have, I suppose, been called on to extract, is another member of the genus. Seeing, then, that both the dog and the horse, man's most frequent companions, suffer from the presence of filariæ, is it improbable that man himself should be the victim of a similar intruder?

These are some of the conjectures which this study in what I might term Comparative Pathology has thrust on me; and I cannot but regret that native prejudice forbids their being put to the test of *post-mortem* dissection.

Since what precedes was written, I have met with the *Filaria sanguinis hominis* in the human blood no less than fifteen times.

With the practice I had acquired in the detection of hæmatozoa in the blood of the dog, I commenced some time ago the systematic examination of human blood. To help me in the work, which is excessively tedious and laborious, I familiarised two Chinese assistants with the appearance of the canine hæmatozoon, and showed them how to manipulate for the detection of similar organisms in man. No selection is made of cases, but the first

patient or healthy person who presents, and is willing to have his finger pricked, is examined ; six slides of blood, at least, being carefully searched. In this way we have got over 190 cases, with the rather unexpected result of finding hæmatozoa in fifteen instances, or in about 8 per cent. To prevent mistakes or imposition, when the parasite is found by my assistants, I take care to verify the observation for myself from a fresh specimen of blood, which I see drawn. I failed to see hæmatozoa in four instances in which they were reported ; but I believe my assistants' observations were correct : they were confirmed by the persons who supplied the blood. Their horror at the snake-like animal they had given birth to was conclusive. As my re-examination was made some days after the first detection of the parasites, it is likely that these had disappeared temporarily. This has happened in several instances I have myself closely watched.

The *Filaria sanguinis hominis* resembles very closely, in general appearance and movements, the canine hæmatozoon previously described. Accurate measurements are difficult to make, on account of the restlessness of the animal when alive, and the contraction which its body undergoes when fixed in desiccated blood. The short time when the blood is thickening, previous to thorough inspissation, is the most favourable for examining the animal ; then its movements are languid, and admit of the details being studied. From a number of observations, I conclude that it measures slightly less than $\frac{1}{3000}$th of an inch in breadth, by about $\frac{1}{90}$th of an inch in length, or thereabouts ; on the whole, its dimensions are rather under those of the canine variety. There are two or three points in which distinct and characteristic differences can be made out in the two species, when seen through a higher power. The canine variety appears to be naked and structureless ; the human, on the contrary, is provided with a very delicate non-contractile integument, within which the body of the animal is incessantly shortened and elongated. This, I believe, is the explanation of the appearance of a lash of extreme tenuity at the head and tail being sometimes visible, and sometimes not, and the occasional thickening of the extremity of the tail. The lash is the collapsed integument from which the head or tail has been withdrawn, and into which they are again projected. It seems to have no elasticity or spring, but follows like a limp string the movements of the body of the animal. Unlike the canine hæmatozoon, in many specimens of the human variety, though not in all, there is about the centre of the body an elongated yellow patch, the structure of which, with the microscopic power at my command, I cannot make out. I believe it appertains to an alimentary canal. On close examination with a high power, distinct movements as of a mouth can be made out at the extremity of the head. They resemble the breathing movements of a fish's mouth. The aperture, if aperture exists, is not simple, but I think is provided with several lips.

(Dr. Manson concludes his valuable contribution to comparative pathology with notes of cases in which the *Filaria sanguinis* had been observed in man.)

With regard to this subject, Dr. Jamieson also writes in the *Chinese Customs Gazette* :—

" Last June, Mr. Duff, of Chinkiang, was good enough to forward to me a bottle containing two nematode worms, one of them two inches, and the other two inches and a quarter long, which three weeks before he had discovered in an aquarium filled with rain-water, and had carefully watched and nursed. They were in all respects identical with those found in the hearts of dogs. When he first saw them they were about half an inch long. In these reports, No. 7, page 13, Dr. Somerville published all the information he had collected up to that time about these worms, and mentioned, without altogether endorsing, the common opinion among foreigners at Foochow, that

'dogs get worms in the heart from drinking the water of the stagnant pools about the settlement.' Mr. Duff's observation appears to support the Foochow opinion. After the worms came into my possession I kept them, without changing the water, in Mr. Duff's bottle, merely tying a piece of muslin over the top. They flourished and grew rapidly for some four weeks, by which time their length (guessed at) was about three inches and a half. One morning they had disappeared from the bottle, and the water, which had been clear and odourless on the previous day, had begun to get putrid, and swarmed with the minute transversely-striped animalcules which are found in stagnant water, rapidly propelling themselves by alternately curling and extending their bodies. I saw but one case of worms in a dog during the half-year, but this one is worthy of note if only on account of the small number of worms that sufficed to kill. On August 12th, 1876, I examined a spaniel at the Horse Bazaar, which, apparently perfectly well in the morning, died suddenly in the forenoon. On opening the chest the lungs were found bloodless and collapsed—a condition speedily explained on cutting into the right ventricle. Here a coil consisting of six worms, one of which was alive, was found completely occluding the pulmonary artery. The mass was surrounded by soft clot. There were no worms in any of the other vessels.

Reviews.

THE MANAGEMENT AND DISEASES OF THE DOG. By J. W. Hill, F.R.C.V.S. London: Baillière, Tindall and Cox.

It always affords us unfeigned pleasure to welcome accessions to the yet small number of veterinary surgeons who are able and willing to benefit their profession, and add to the value of its literature, by useful publications. Mr. Hill is the youngest and latest of those who claim our attention and sympathies in this direction; and his book on the management, maladies, and accidents to which the dog is liable, well deserves all the praise which we can accord it, and particularly when we know that it has been produced in the midst of heavy and exacting professional engagements. There was great need for a good practical treatise on canine pathology and surgery, as the value of dogs has been so increased, from improved breeding and the introduction and perfecting of fancy or useful varieties, that "dog practice" has become an important and highly remunerative part of the veterinarian's calling. Mr. Hill's work is of an eminently practical character, and his extensive experience among dogs enables him to speak as an authority on the subject. The arrangement adopted is good, the descriptions are full and explicit, and the principles on which treatment is based are founded on our modern notions of pathological processes. The work, altogether, is a very creditable production, and a valuable addition to veterinary literature. It will be found a good and trustworthy guide and book of reference, and we have no hesitation whatever in strongly commending it to owners of dogs, as well as to members of the profession. It is well illustrated, the frontispiece is admirable, and the "get-up" of the volume is, on the whole, praiseworthy.

THE CUMBERLAND DISEASE IN AUSTRALIAN SHEEP. By Graham Mitchell, F.R.C.V.S. Melbourne: McKinley and Co.

Mr. Mitchell has published a booklet on a very destructive and fatal malady which has existed for many years in Australia, and is known, from the district in which it was earliest observed, as the Cumberland Disease. Though it appears to be enzoötic, yet, from the evidence furnished by Mr. Mitchell, there can scarcely be a doubt as to its having extended its radius very considerably, and it is now known over a somewhat large extent of country. Its fatality, and the rapidity with which it runs its course, seem to have caused much excitement and alarm in the districts more recently invaded, where it became known as the "New Disease," and opinions as to its nature became numerous and conflicting. On perusing Mr. Mitchell's description, and the many reports and letters he has collected, one is strongly inclined to agree with him in the opinion he expresses as to the malady being nothing more or less than Anthrax Fever. The disease is evidently inoculable, and people have been affected with malignant carbuncle through coming in contact with diseased animals or their products. The disease, however, like some others prevalent in Australia, deserves further investigation—especially of an experimental and microscopical kind—and this should be undertaken by competent men at the instigation of the colonial Government. There is very much to be learned with regard to animal diseases in Australia; and in addition to ascertaining the nature of those peculiar to that great continent, it would prove most interesting and instructive to be informed as to the modifying influence of climate on those maladies which are known in the Western world. This information, we trust, will be furnished before long by those veterinary surgeons in Australia who have their science most at heart, and as one of these, we look to Mr. Mitchell to do his part.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING, HELD MARCH 8TH, 1878.

Present—The President in the chair; Professor Brown; Messrs. Batt, Cox, Cuthbert, Cartwright, Dray, Fleming, Gowing, Greaves, Moon, Reynolds, Smith, Williams, Woodger, Taylor, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

The SECRETARY intimated that a letter had been received from Mr. George Williams, acknowledging the honour of his election as a member of Council.

Examinations.

At the meetings of the Court of Examiners for the Pass Examination, held in London on January 8th, 11 students passed and 6 were rejected.

At the meetings of the Court of Examiners held on January 9th, for the "first Examination" under the two years' system, 2 passed and 7 were rejected; and on January 10th 2 passed and 1 was rejected; for the three years' system 5 passed and 3 were rejected. On January 11th, for the first examination, 10 passed and 1 was rejected: making a total of 19 passed and 12 rejected.

Scotch Examinations.

At a meeting of the Court of Examiners in Scotland, held on January 21st, 1878, from the Edinburgh Veterinary College 2 passed and 1 was rejected, and from the New Veterinary College 2 passed and 3 were rejected.

A letter had been received from Dr. Dunsmure stating that there were only nine candidates for the minor examination under the old rules. He also enclosed the report of the examinations held in Edinburgh on January 21st, and enclosed a cheque for £19 3*s.* 6*d.*, balance of fees and receipts for expenditure.

A letter had also been received from a rejected student asking whether he could have another examination.

He was furnished with an extract from Bye-law 34, and informed that students were not allowed to present themselves more than three times for examination, and that the next examination would be fixed by the Council in April. He then wrote to ask whether rejected students would have to pay three guineas for examination; but he was referred for further information to Dr. Dunsmure.

Another letter was written by Dr. Dunsmure, in which he stated that he had letters from three rejected students from the New Veterinary College, and asked to be informed whether they could come up for examination in April next.

The SECRETARY stated that, as they had only been rejected once, they were entitled to come up again for examination.

A letter had also been received from Mr. Murray, holding the Highland and Agricultural Society's certificate, and who was a candidate for the diploma of the Royal College of Veterinary Surgeons, wishing to be examined in Edinburgh at Christmas.

He was informed that there would be no examination for the diploma until April next.

A letter was received from Professor Simonds, stating that he would not be able to attend the Council meeting, and asking that the Council would sanction April 1st as the commencement of the forthcoming examinations, and that five nights would be required for the same.

The proposal was agreed to.

Professor BROWN, who was obliged to leave the meeting, took leave to make a few observations with regard to the Contagious Diseases (Animals) Bill. Considering the position he occupied with regard to the Bill, it would be quite impossible for him to say anything with reference to its objects or as to the course of any legislation which might be taken in regard to it. He wished particularly to announce to the Council that on several occasions—certainly on three—Professor Simonds and himself endeavoured to introduce into the Bill a clause that would lead to veterinary inspectors being members of the Royal College of Veterinary Surgeons, but on every occasion the amendments in Committee practically negatived their endeavours. The Bill that was now before the House provided that the local authorities

should be bound to appoint a veterinary inspector in each district. They were not prohibited from appointing any other officers they chose; but they were bound to keep one veterinary inspector; and it would be found that the word "veterinary," in connection with "inspector," signified a member of the Royal College of Veterinary Surgeons. That was so far satisfactory; but he also wished to state that there had always been a determined effort to introduce the holders of the Highland and Agricultural Society's certificate on a par with the members of the Royal College of Veterinary Surgeons. The general statement that there were men holding that certificate who were as fit to be inspectors as the members of the Royal College, was no doubt quite true. There were men even without certificates who were capable of being inspectors; but it was not a question of capability,—it was a question whether a man should be termed veterinary surgeon without holding the diploma of the Royal College of Veterinary Surgeons; and he apprehended that the feeling of the Council was that such permission should not be given if it could possibly be withheld. He did not know what course the Council proposed to take, but he would suggest that the Bill should be watched and that efforts should be made to ensure that the members of the College should be recognised, and that whatever other persons might be employed by the local authorities as inspectors, they should not be put in the same position as members of the Royal College. As a hint to the Parliamentary Committee, he alluded to the Cruelty to Animals Bill, in Clause 5 of which there was a distinct provision, that if any person, after the passing of the Bill, wished to have an infirmary for animals, he should give notice to the local authorities and have his place registered, and that it should be opened at reasonable times to the inspection of inspectors whom the local authority should appoint from officers already under their charge or other persons whom they might think fit. If any one wished to have an infirmary, it would not be pleasant to know that it was an open establishment for the visit of the local authority inspector at any time he might think proper to look in without the slightest ground for interference.

The PRESIDENT said there was a question from Edinburgh, by Mr. Williams, in regard to Clause 37 of the Bill, which provided that "every local authority shall from time to time appoint so many inspectors and other officers as they think necessary for the execution and enforcement of this Act, and shall assign those inspectors and officers such duties and salaries or allowances, and may delegate to any of them such authority and discretion, as to the authority seem fit." The question Mr. Williams asked was, whether the inspector, without the sanction of the local authority, could order the slaughter of diseased animals under the present Act.

Professor BROWN.—Certainly not: the local authority were bound, in the first place, to inquire into the correctness of the report. The inspector would have no such authority unless the local authority delegated it. Professor Brown having also answered some other questions relating to the provisions of the Bill, was obliged to leave the Council.

The SECRETARY stated that, in answer to a letter from Mr. Cornhill, of Bridgewater, he had replied to the effect that no person is allowed to assume the title of Veterinary Surgeon except after an examination by the Royal College of Veterinary Surgeons.

The Council then reverted to the agenda.

A letter had been received from Mr. Jenkins, Secretary of the Royal Agricultural Society, asking for the Examiners' Report.

A reply was sent to the effect that at the request of the President the report was sent to Mr. Harpley on the 17th inst. The names and addresses of the successful candidates were also enclosed.

The SECRETARY read the following report of the examination of candidates for the Royal Agricultural Society's prizes :—

Report.

"The examination of candidates for the Royal Agricultural Society's prizes took place on January 9th and 10th.

"Twelve candidates were eligible to compete for the above prizes ; seven having entered their names, only four presented themselves on the day of examination. The practical part was conducted at the Lairs of the Cattle Market, Islington, and the written and *vivâ-voce* Examination was held at the Royal College of Veterinary Surgeons.

"The following is the Report received from the Examiners appointed by the Council :

"To the President and Council of the Royal College of Veterinary Surgeons :

"GENTLEMEN,—We, the Examiners selected by you to test the qualifications of the candidates for the prizes for Cattle Pathology so liberally offered by the Royal Agricultural Society, beg to hand you our report.

"We feel some regret in not being able to compliment the gentlemen on their proficiency so highly as last year, but we are happy to add that the practical portion of the examination was the most satisfactory.

"Having fixed the standard of excellency at 900, the numbers attached to each name will indicate the position the several gentlemen have attained.

"First Prize	Matthew Hedley, 640.
Second Prize	Thomas Chambers, 545.
Third Prize	Robert Ernest Hoile, 533.
	Lawrence C. Tipper, 302.

(signed) ROBERT L. HUNT,
T. WALTON MAYER,
D. GRESWELL,
} *Examiners.*

"*Jan.* 10*th*, 1878."

The following is a copy of the letter which accompanied it :—

"10, Red Lion Square, London, W.C.,
"*Jan.* 17*th*, 1878.

"SIR,—I have the honour to forward the Report of the Examiners appointed by the R.C.V.S. for the prizes so generously offered by the R. A. Society to the students of the Royal Veterinary College.

"I am glad that the Examiners have not hesitated to bring to notice the deficiency in the knowledge of cattle practice shown by the competitors.

"When a fault is thus prominently brought to notice, there is always reason to hope that it will be corrected.

"The prizes now given, and I hope to be continued annually, will no doubt cause more attention to be given to the important subject of cattle practice.

"I may add, however, in extenuation of a failing in proficiency in this branch of veterinary science—which I very much regret—that the period of study hitherto required (viz. *two* years) has been too short.

"This evil is now corrected, and under the new course of *three* years I hope and think that it will be possible for the schools to turn out students thoroughly fitted *at once* to go into practice.

"I have the honour to be, sir,
"Your obedient humble servant,
"F. W. FITZWYGRAM, President R.C.V.S.

"The Secretary, Royal Agricultural Society."

The following Report of the Examiners for the Fellowship Degree was read :—

"ROYAL COLLEGE OF VETERINARY SURGEONS.

"A special meeting of the Court of Examiners appointed by the Council for the examination of candidates for the degree of Fellow, was held, in accordance with the Supplemental Charter, on Jan. 12th, 1878.

"The following candidates having produced their certificates, underwent the necessary written and oral examinations, and obtained their diplomas and were admitted Fellows of the R.C.V.S. :—

"Mr. Arthur Henry Santy, Norwich.
„ William Duguid, 'Brown Institution,' London.
„ Robert Ward, Woking, Surrey.
„ John Woodroffe Hill, Wolverhampton.
„ Harry Olver, Tamworth.
„ Joseph Mackinder, Peterborough.
„ Charles Edward Challinor, Pendlebury, Manchester."

A letter had also been received from Captain Russell, in continuation of his letter of May last, asking for a definite reply as to whether he should be required to pass an examination before the College of Preceptors before he presented himself for a Fellowship.

He was informed that the period, according to the Bye-law, had not yet expired. The Secretary stated that Capt. Russell had since filled up the certificate and returned it for the examination.

The PRESIDENT held that the case had not come within the rules of the Royal College of Veterinary Surgeons.

The SECRETARY stated that a letter had been received from the Lord President of the Council, dated 26th February, 1878, enclosing a copy of the Contagious Diseases (Animals) Bill, and stating that the Privy Council would be glad to receive the opinions of the Council thereon.

The PRESIDENT thought that a general discussion on the merits of the Bill should take place, and that afterwards a small Committee should be appointed to draw up a report.

Mr. SMITH then resumed the discussion on the Bill. He said he had been appointed inspector for the county of Norfolk, and gave several valuable facts which had occurred in his experience, for the guidance of the Committee. He thought that if none but members of the Royal College of Veterinary Surgeons were appointed inspectors, it would tend to raise the status of the profession, and give satisfaction to the public generally.

Mr. FLEMING thought that on the whole the Bill was a very good one, and was calculated to confer a large amount of benefit on the country. He was sure that the profession would be grateful to the Lord President of the Council for having included in the Bill members of the Royal College of Veterinary Surgeons. This, however, only applied to England, Scotland and Ireland being omitted. However, the concession in regard to England was a step in advance ; and perhaps His Grace was led to exempt Scotland and Ireland from the fact that a great number of those who practised held the certificate of the Highland and Agricultural Society.* If the attention of the Lord President were called to the omission, no doubt it would be remedied. The word "animal" might also be more strictly defined ; and he thought the words "horse" and "mule" ought to be inserted, otherwise the Bill would be found to work badly. On the other hand, the profession ought to feel

* The statement that Scotland is exempted in this particular is erroneous ; Ireland alone is exempt.

that the various diseases would be properly dealt with. In his opinion it was the best Bill that had ever been introduced, and would go far to reduce the injuries inflicted by the several maladies.

Mr. PETER TAYLOR wished that the Bill had been more comprehensive. There was no guidance as to Glanders and Farcy, and he thought that the slaughter of cattle at the port of embarkation was undesirable.

Mr. REYNOLDS thought the Bill admirable as far as it went, but thought it did not go quite far enough. It would be found in practice that the dead meat market for the supply of inland towns would work far better than the import of cattle. He thought it of great importance that the clause which provided for the recognition of veterinary surgeons as inspectors ought to be included in the Bill, and that strenuous efforts ought to be made to retain it.

The PRESIDENT said it occurred to him that there was a practical difficulty in including horses in the Bill. If a horse were slaughtered, the owner would have to be paid compensation to a certain amount; but with regard to cattle, they had a certain value when they were killed; it was therefore to be presumed that a valuable property was being destroyed. If the large class of cab-drivers and costermongers were to be told that they were to have £5 each for their horses if slaughtered in cases of Glanders, then there would be a danger of their being starved to death; and almost every horse in London belonging to these classes would die of Glanders.

Mr. FLEMING thought it would be well to point out the omission to the Privy Council.

Mr. BATT held that there ought to be some official inspection of the places where horses were kept, because the prevalence of Glanders and Farcy was greatly due in London to the unsanitary condition of the stables.

Mr. FLEMING considered that there should be a right of entry into stables, similar to that which had been extended to dairies.

The PRESIDENT thought that in London there was power to make such entry.

Mr. WOODGER said it only extended to the inspector of nuisances, who could place a policeman at the door where there was suspicion. If the owner desired, the reason for entering must be put in writing.

The PRESIDENT remarked that English people had great objection to their premises being invaded.

Mr. WOODGER said that he had never met with any opposition in inspecting premises.

The PRESIDENT was of opinion that there should be a general inspection of cowhouses and stables.

In reply to Mr. SMITH, Mr. WOODGER stated that the dairies in London were all licensed.

Mr. SMITH thought it was desirable that there should be a right of entry into country dairies, and that there should be a small registration fee, say of *2s. 6d.* a year, which would give the right of supervision.

Mr. GREAVES was of opinion that a small committee, with discretionary powers, should be appointed to consider the matter, and that the Council should use every effort to have the clause providing for veterinary surgeons as inspectors retained in the Bill.

A Committee, composed of the President, and Messrs. Fleming, Smith, Woodger, Greaves, and Dray, was then appointed to meet on the following day, to consider and report upon the merits of the Bill.

Suspension of Bye-laws 32 and 33.

The following letter was read from Mr. Loch in reference to the suspension of these bye-laws :—

"8, Great George Street, Westminster, S.W.,
"*Jan.* 11*th*, 1878.

"DEAR SIR,—I duly received your letter of the 5th inst. I presume it is wished that I should give an opinion upon the terms of the motion with reference to Bye-laws 32 and 33, notice of which has been given by Sir F. Fitzwygram, and of which you have sent me a copy.

"With much deference, therefore, I would suggest that the motion, if adopted in its present shape, might be open to the construction that Bye-laws 32 and 33 were for the next three years wholly suspended in favour of all and sundry—which wide construction would not be limited by the words which follow applicable to gentlemen holding the certificates of the Highland and Agricultural Society. The admission of those gentlemen in a particular manner might be the reason for the suspension; but others beside them would, I apprehend, under the present wording, be entitled to the same privilege.

"I venture to submit the enclosed form for consideration. By it the two bye-laws would not be suspended, but only altered or modified to meet the requirement of the particular case.

"Yours faithfully,
"(signed) W. A. LOCH.

"W. H. Coates, Esq., Secretary,
"Royal College of Veterinary Surgeons."

The PRESIDENT said that in consequence of Mr. Loch's opinion he withdrew the motion he had brought forward in reference to this matter some time ago, and gave notice to suspend the alterations that he had proposed. The notice was as follows :—

"I give notice that I intend at the next quarterly meeting to move that, notwithstanding Bye-laws 32 and 33, gentlemen who have held the certificate of the Highland and Agricultural Society of Scotland for three years, and who are desirous of obtaining the diploma of the Royal College of Veterinary Surgeons, may at any time within a period of three years from the 8th day of March, 1878, pass the second and third examinations at one and the same time, on payment of the full fees—*i.e.*, £10 10*s.*; and gentlemen who have held the certificate for less than three years prior to 31st December, 1877, and who are desirous of obtaining the diploma of the Royal College of Veterinary Surgeons, may at any time within the said period of three years pass all three examinations at one and the same time, on payment of the full fees.

"F. W. FITZWYGRAM.

"*March* 8*th*, 1878."

The PRESIDENT said that there was a notice of motion standing in his name to defer the enforcement of Bye-law No. 35 for a further period—namely, until the list of students who entered the veterinary school prior to the passing of that bye-law was exhausted; or to extend the period under which students might be examined under the old two years' rules from Christmas 1878 to July 1879. In all legislation they were obliged to have regard to vested interests. When Bye-law 35 was passed, it was agreed that it should not be operative until the list of students who joined prior to the passing of the new Bye-laws was exhausted. It appeared that, although July 1878 was fixed as the date when the list would probably be exhausted, there would be a number of students who would be affected by the rule, and to whom an injustice would be done. He therefore proposed—"That the rule shall not be enforced until such time as the list of students who joined prior to the making of that rule are exhausted, or until July 1879." The

Governors of the Veterinary College in London would be satisfied with this course, to which he asked the assent of the Council.

The motion was agreed to.

The PRESIDENT gave notice that he intended to move an alteration in Bye-law 50, line 5, to the effect that in lieu of "or a certificate of liberal examination," there should be inserted the words "or after an examination by the College of Preceptors on subjects to be fixed from time to time by the Council."

The SECRETARY stated that a letter had been received from Mr. Powis, Secretary of the Royal Veterinary College, in reference to the case of those rejected students who, at the recommendation of the Examiners, had been put back for six months. He represented the case as one of hardship on students who had entered the College prior to the enactment of Bye-law 35.

The PRESIDENT moved "that Bye-law 35 should not be held to apply to students who joined prior to its enactment."

The motion was seconded by Mr. DRAY, and carried.

Fellowship Degree.

Two letters were read, dated January and February last, from candidates for the Fellowship degree, enclosing the required certificates of qualification.

The PRESIDENT decided that no examination should take place until there was the requisite number of candidates necessary to convening the special court of examiners.

The Council then adjourned.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE annual general meeting of this Society was held on Monday, Feb. 16th, in the London Hotel, Edinburgh, Mr. Cunningham, V.S., Slateford, the retiring President, presiding.

Among those present were Professors Walley, Baird and Vaughan; Messrs. Young, East Calder; Aitken, Edinburgh; Robertson, Kelso; Storie, East Linton; Balfour, sen., Balfour, jun., Kirkcaldy; Boyd, Melrose; Mitchell, Bathgate; Borthwick, Kirkliston; Reid, Leith; Sproule, Dundee; McFarlane, Greenock; and the Secretary.

Letters of apology were received from several members who were unavoidably absent. A letter was read from Mr. Cumming, M.R.C.V.S., Edinburgh, who at the previous meeting had been elected to the office of President for the current year, expressing his regret that circumstances would not permit him to accept that honour. A letter was read from Principal Williams of the New Veterinary College, stating that he felt reluctantly obliged to resign his membership.

Mr. ROBERTSON regretted the above resignations, and on his motion it was agreed to allow them to lie on the table till next meeting.

On the motion of Mr. Cunningham, Professor Baird, of the Dick College, was elected to the vacant chair, and forthwith entered upon his duties.

Mr. CUNNINGHAM exhibited an interesting stuffed specimen of a sysomian monstrosity in a calf. The dam was a crossbred cow between Ayrshire and Shorthorn; and the case having been one of breech presentation, delivery had been effected with comparative ease. Contrary to what is usually seen, the two heads were perfectly developed and beautifully formed. He had made a dissection of the body, with a view to ascertaining whether the abnormality had arisen from preternatural development occurring from a single ovum, or whether it had been the result of a partial fusion of two fœtuses at an early

period of their development. He had come to the latter conclusion—as, although the thorax and abdomen of the animal seemed single on the exterior, he found in the former two hearts with their bloodvessels, and in the latter traces of two sets of digestive organs.

Mr. STORIE exhibited the enlarged spleen of a mare which had died the day previous. The animal had been working till within a week of her death. The new growth was pronounced by Principal Walley to be one of Lymphadenoma, this being the largest of the kind he had ever seen.

Mr. CUNNINGHAM then read a paper on the position and standing of a veterinary surgeon as inspector under the Contagious Diseases (Animals) Act, in which he said :—

"One can scarcely read over the present Act, and schedules, and orders of Council, without being struck with the fact that the term "veterinary surgeon" is rarely if ever mentioned. Of veterinary surgeons as individuals, or as a body, little or no notice is taken. They rank as inspectors, and are placed under the various local authorities, whose treatment of them is a study of itself. Power and authority, and considerable freedom of action are given, as is right and just, to the Privy Council, and in a lesser degree to the local authorities. Not unfrequently they are allowed to do as they deem fit and expedient; but for the inspectors certain duties, more or less clearly defined, are laid down, from which they must take care to deviate as little as possible, and they are seldom, if ever, left to the freedom of their own will. Is this the position a veterinary surgeon should occupy under a Contagious Disease Act? Cannot veterinary surgeons be trusted to do what is right and honourable without such an amount of supervision? Are they not as fit to carry out the requirements of the Act, and possibly to suggest improvements, as the members of the local authorities, even though the social standing and position of many of the latter be far superior? It is a well-known fact that veterinary surgeons generally do not concern themselves much with questions as to the importation or non-importation of foreign animals; with what countries should be scheduled, and what not; with the levying of rates, carrying on of prosecutions, and such like business of the Act. They willingly leave all these matters to other and abler heads, better acquainted with such subjects, and more able to deal with them; but when it comes to the details of the inspection of a district, they think they are on their own ground, and should not be the mere agents of the local authorities, but should be free to a much greater extent than at present to do the very best they can to detect, check, and if possible eradicate, the respective contagious and infectious diseases.

"It would not be difficult to show, that had this been done at first, much better results would have followed. They heard a good deal of this new and amended Act and its improvements (and I am sure we all hope they will be thorough improvements, though from the little I have seen of the Bill I am disappointed with it in many respects); but how often in this very room, year after year, have many of these improvements and others been talked of? How long ago is it since we wished the thirty days extended to sixty, and in exceptional cases to three or four months? How often have we declared that policemen were unfit to act as inspectors, and that chief constables should not interfere with the inspectors? How long is it since veterinary surgeons declared that the leaving each local authority to do very much as seemed fit to them with Pleuro-pneumonia and Foot-and-mouth Disease was a bad system, and that one broad, well-defined course should have been marked out for them to pursue? And I cannot help saying, that had many other suggestions thrown out by members of our profession been embodied in this new Bill, it would have been a much better measure. I fail to find in it any directions as to the slaughter or non-slaughter of animals suspected to be

affected with Pleuro-pneumonia,—see no clause prohibiting the bringing in of fresh animals into places already infected, and placing them among animals actually suffering from the disease. Dairymen's byres are to be subject to inspection (for milk purposes only, however, I incline to believe), but cattle-dealers are to be left in peace and quietness. The compensation scheme appears to be left as at present; yet we have often said it would stand considerable improvement,—and so on. Ever since the Act came into operation, the cry among us has been for improvements such as these, and after ten long years we have now the pleasure of seeing a few of them proposed; and can only hope that in something less than other ten years a good few more of them will be put in operation. However, 'better late than never.' Slowly and surely, I believe, the veterinary surgeon will yet gain his proper position even as an inspector. Let his duties be clearly defined; make him responsible for his actions to the local authority or any other corporate body; but let him not be their mere paid agent or servant. Give him a little discretionary power and freedom of action, and, so long as he shows that he is acting rightly and for the public good, let him be supported.

"This happy state of matters cannot come a minute too soon, for I speak advisedly when I say that many men who, on being appointed, were willing to work and do the very best in their power to root out and keep their districts free from Pleuro-pneumonia and Foot-and-mouth Disease and kindred diseases, have become so disappointed (to use a mild term) with the way in which they have been treated as inspectors, that they have lost the interest they once had in their work. They simply do what they are required to do, and think no more of the matter. This is not a desirable state of things, but it might easily be remedied. Let us now glance at a few of an inspector's duties.

"1. His Duty as to Suspected Cases.—Every now and then an inspector meets with some unhealthy, miserable object of an animal, standing often beside others in high condition and valuable. Plainly tubercle, acute or chronic disease of the lungs or liver, or some such disorder, is present; but other symptoms also exist which indicate Pleuro-pneumonia, and which render it almost impossible for the inspector to decide whether or not it really exists. What should be his duty in such a case? Before and after the Act came into operation, I have isolated such animals, kept them for several days or a week, till I could make up my mind, and always regretted it. Chronic Pleuro-pneumonia, evidently of long standing, disclosed by *post-mortem* examination, I remember seeing followed by the death from common Pleuro-pneumonia of four out of the five remaining animals. Tubercle, with Pleuro-pneumonia in its first and second stage, preceded by six weeks two outbreaks of the same disease in byres containing thirty or forty cows each, running its course with the usual results; and I have no doubt many now present could give similar instances. Slaughter all such suspicious cases, I would say; and if after death it is found that only tubercle is present, or that common disease of the lungs, or the presence of a foreign body—needle, pin, or such-like—in the chest has caused death, the owner will generally only be too glad that there is no Pleuro-pneumonia to ask compensation, and if he does insist on it, then I believe the public money will not be greatly wasted though he gets it. The present Act, however, gives no power to act in this way; and if a clause authorizing the slaughter of such cases, and the giving of moderate compensation, could be inserted in the new Bill, it would do little harm and a great deal of good. Had such a clause been in the present Act, the recent action in the Court of Session would probably never have been raised.

"2. And, more particularly, Can an Inspector order Slaughter in Pleuro-pneumonia?—Lately, from the bench of the Court of Session, many of us

heard the strange opinion advanced, that the local authority only have this power; that they cannot authorise an inspector to order the slaughter of any animal suffering from Pleuro-pneumonia; and that if the latter does so he exceeds his duty, and as a consequence the law will not protect him. With all due deference, and with the very greatest respect for Lord Rutherfurd Clark, I cannot see how this interpretation of this section of the Act can be its true meaning. The Act of 1869 did not at first enjoin the slaughter in animals affected with Pleuro-pneumonia—made, in fact, no special provision for it—and consequently the duty of an inspector described in any of the sections of that Act cannot have reference to the slaughtering of such animals. Yet section 54, of which so much was made, is a section of that Act. Now, section 54 refers only and solely to an outbreak of disease, and to the laying on of the rules of the seventh schedule, which constitute the premises an infected place, and says nothing whatever about slaughter; and it humbly appears to me that the duty of an inspector regarding the slaughtering of animals affected with Pleuro-pneumonia was judged of, *in a great measure*, by the rules which describe his duty and mode of procedure with respect to an outbreak of disease and the constituting of an infected place.

"As regards the movement of animals from an infected place, I think that the true interpretation of the Act is, leave is given to the owner to remove without a licence an animal 'for immediate slaughter,' provided he complies with regulations to be from time to time made by the local authorities for ensuring such slaughter, and provided that he does not 'carry, lead, or drive the animal, or cause it to be carried, led, or driven along a highway or thoroughfare." An inspector cannot give a licence to remove a diseased animal along a highway or thoroughfare, or in fact anywhere; he can only give a licence for the removal of animals certified by him to be free from Pleuro-pneumonia, and which have not been in the same shed or herd with animals affected with that disease—though this, I have good authority for saying, is the true meaning of the Act. I think a little exception might be made with respect to carrying animals in the 'float.' Some byres and premises, especially in towns, are so situated that removal to the nearest slaughterhouse is a great advantage, and in fact almost a necessity. I am not, however, myself very fond of sending diseased animals to the slaughterhouse. I think if a few more of them were buried instead of being eaten it would be an improvement. And ever since I saw a badly diseased lung fished out of the manure barrow at the Edinburgh slaughterhouse, I have sent very few animals there. The contents of that barrow would in all probability be emptied into a boat on the neighbouring canal, from which it would find its way to some farmer's field. And surely a badly diseased Pleuro-pneumonia lung on the top of a manure heap with cattle around is not an improbable sight nor a very pleasant one.

"One word as to the use of the thermometer, and the appointment only of members of the Royal College of Veterinary Surgeons as inspectors. The thermometer, no doubt, is very useful in its way, but the inspector who cannot diagnose Pleuro-pneumonia without the instrument will scarcely, I fear, be able to recognise it with it. And it has long been the opinion of many inspectors that the ascertaining of the internal temperature, and dividing the animals into two lots, is just about as effectual a means of thoroughly inoculating the whole herd as could be practised, and they therefore do not practise it. The less movement or mixing up the better, in an infected place.

"With regard to members of the R.C.V.S. only as inspectors, that clause of the Bill will not, I hope, pass without opposition. At the time many of the holders of the Highland Society took their diploma, the Royal College of Veterinary Surgeons was not doing very fairly towards the Scotch schools,

and they were quite justified in taking only the Society's certificate. These men are quite the equals of the members of the R.C.V.S. in every respect, and quite as well qualified to act as inspectors under either the present or any future Contagious Diseases (Animals) Act."

Some discussion afterwards took place on the same subject; but on it being intimated that it was proposed to discuss the new Contagious Diseases (Animals) Bill at the next quarterly meeting, the matter was allowed to drop. The proceedings then terminated, and the members and friends afterwards dined together. JOHN MCFADYEAN, *Secretary.*

CENTRAL VETERINARY MEDICAL SOCIETY.

AT a meeting held on Thursday, February 7th, at seven p.m., Mr. South in the chair, owing to the unavoidable absence of several Fellows interested in the subject, the adjourned discussion on Rabies was further postponed.

Mr. STEEL exhibited a tumour taken from a horse in a knacker's yard. It had been sent to him, and was removed from the superior part of the neck just below the larynx; he believed it to be an enlargement of the thyroid body, a type of goitre in man. The history was meagre, the animal being a cart-mare, and in last owner's possession four or five years, during which time she carried it about, there being little or no increase of size during the period. It weighed 1 lb. 14 oz. He believed it was colloid in nature; externally it was covered with a thin transparent coat; the under structure was somewhat lobulated, and very firm and well-organised; one section was yellowish, and made up of spaces of various sizes containing a serous fluid, and blood-corpuscles and cells larger than usual, with a granular surface; the spaces also held an amount of amber-coloured fluid of a gelatinous character, which further examination showed to be colloid cells. The mare was destroyed for Lymphangitis of one of the hind-extremities, which often disabled her for work. It was an unusual affection in the horse. In answer to an inquiry, Mr. Steel said he did not know the colour of the mare, and the letter he had received with the specimen stated there were no large vessels in connection with it; still they would see the veins if examined.

The CHAIRMAN held that it was more a fatty fibrous tumour than glandular.

The SECRETARY (Mr. J. Rowe) said that if they had seen it in the living animal they might have been puzzled as to its nature, and believed it to be the thyroid gland simply from its locality. He had under his care a pug dog, which, when submitted to him, presented every appearance of a similar enlargement; the owner supposed it was a tumour. He thought it an abnormal increase of the gland, and had decided to remove it, thinking there would be no difficulty, the skin being pendulous; but, by some accident or unknown cause, what had been no more than an eyesore became scratched on the night of admission, and in the morning there was a very large swelling, which he could only treat as an abscess and blister. He had to make a lengthy opening to well clean it; it was now doing well. He might also refer to another case, also in a pug, which he saw some six weeks back. Here the swelling was directly under the middle of the throat, and was gradually implicating the muscles of the neck down the front. Owing to its peculiar position, he doubted the expediency of a surgical operation; he therefore had treated it with iodine, and returned the dog.

Mr. SHAW had particularly noticed it in horses, and that grey horses were the subjects of such enlargements of the thyroid.

The CHAIRMAN observed this in the case of a pony with a similar swelling, four years ago, but not so large. He considered it interfered with the animal's comfort, and caused a continual cough. He decided to cast the

animal and excise it, and did so, and the horse did well. The tumour contained a yellowish-brown fluid, and no solid material afterwards; the cough was very slight, he having removed the pressure on the larynx the tumour occasioned.

The CHAIRMAN desired the opinion of the Fellows on a case he would relate. He had that day visited an establishment of thoroughbred horses. On his arrival he found a mare passing her foal prematurely; this was the fourth case within twenty-four hours. It was difficult to arrive at the cause, for the mares were well cared for and had good food, the stable management being everything that could be desired; exercise was afforded them, and they were taken up at night. The stables were sweet, drainage good, boxes examined and cleaned at proper periods. Each mare ought to have foaled in another five or six weeks. The mare he saw was in difficult labour: the head, being doubled back, was, with the neck, in the pelvis. He was able, by taking advantage of the throes, which were very strong, to assist her, and release the foal's head; the next difficulty lay in the fore-legs being back. He gave a stimulant, and in the course of an hour's stay effected with great force the placing of the fore-legs, and with his assistant's aid the delivery. The mare remained down for about half an hour; then rose and ate as though nothing was the matter. He was anxious to ascertain the cause of this. Last year, at two establishments they lost eighteen foals, but many of them went to their time; still the foals were dead. Further, two mares in foal, while galloping about, came into collision with one another—one injuring the shoulder so much as to be disabled for six weeks or more. He braced the leg up, and in three months she recovered. Fearing they would cast their foals before their time, he kept them both quiet; but the result was a dead foal at the full time. In the other mare also injured, she went eight days over, and was then observed to be restless and in pain; but it seems attracted little attention. It was a dead foal, and he found that it had had an attack, while in the uterus, of a determination of blood to the bowels, which were much thickened, and a discharge of blood that had doubtless caused the death of the foal. In one case the mare was sixteen years old. He thought it might be due to the inclement weather, and letting them out of warm boxes into the wet fields. In answer to questions, he said they were not covered by the same horse. He had seen no offal laying about decomposing; no yew-trees on the ground.

Mr. HANCOCK said he was examining a horse at a farmhouse on the previous Saturday, the farmer keeping thirty-five cows; and his opinion was asked respecting the abortion of ten cows. They had received the same bull, and three months ago were in a field together, when one voided a calf; the others had followed one after the other. He thought this was due to a mental impression.

The CHAIRMAN did not accept this as an explanation of his case, for there was more isolation here; and stated that they were, some of them, those that had aborted the previous year, and that he did not believe they had been frightened.

Mr. DANIEL remembered an instance of a review near a number of cows, where sixteen out of thirty aborted within a week after; and in a flock of ewes nearly all aborting after having had a pack of hounds dash in among them.

The SECRETARY asked if there had been over-solicitation on the part of the owners and their attendants on their behalf; because he had frequently known dogs abort solely through the owners having timed their period, and almost the hour, then shutting themselves up with them, and if the parturient pains did not manifest themselves, scaring the poor animals by manipulation.

Mr. H. KING SHAW then submitted the following queries respecting the liability of cows to Pleuro-pneumonia after inoculation. In his opinion they were not so liable. He had seen a great many inoculated, and done a good number himself. There was often a loss of milk, and loss of tails; but he had not seen a case produced by it.

1. Does inoculation for Pleuro-pneumonia produce Pleuro-pneumonia or any other disease?

2. If, after inoculation, certain animals are found to be affected with Pleuro-pneumonia, may we not conclude it has resulted from the inoculation?

3. What time may be considered to elapse between the inoculation and inception, or open identification of Pleuro-pneumonia?

4. Can inoculation so weaken an animal as to render it liable to the disease, say after a period of some weeks?

Mr. HUNTING said that, from a sanitary point, the questions were some of the most important that veterinary surgeons had to meet, for, with the exception of Cattle Plague, no disease of stock was of more importance; and if the questions could be answered positively, they could say certain regulations were not merely valuable, but absolutely to be depended on for prevention and eventual eradication from the country; on the other hand, that they were useless. If the latter, it did not merely disfigure the animals, but further did grievous mischief by inducing belief that the operators were carrying out sanitary measures, and leading them to neglect more beneficial precautions. He thought they might safely say that inoculation, although it never produces the local changes in the lungs called Pleuro-pneumonia, and known as a contagious disease, did produce inflammation of the pleura and lungs. From the experience of some men he knew, it was remarkable how practical men of large experience differed—some believing in its entire immunity, others that the benefit, if any, was the loss of some tails. He cited a case where a man who had been nearly ruined by his losses from the disease, was prevailed upon by a publican who had previously been a dairyman to inoculate his stock, with the result that some lost their tails. A few died of Pleuro-pneumonia, but the man had repeated it on every animal for the last three years, without further loss. In reference to the second question, he thought not, because the greater number of inoculations produced no change in the lungs, and when they found a well-established case accompanied by the lung changes, he thought they might say that animal had received the seeds of disease prior to inoculation. Pleuro-pneumonia shows itself in a period of seven weeks, so they could not say that it was exempted, or might not have an attack, till seven weeks after inoculation. As to its weakening the animal, that would depend on the condition of the lymph used; healthy lymph should not weaken the system, and if it did, it would render the animal liable to an attack of any other affection as readily as this. If it should once be proved that they could give an animal immunity from an attack by inoculation, then it followed that the Government of this country should make inoculation of cattle compulsory.

Mr. MOLE said that in two cattle yards he knew, the dairymen practised inoculation, and spoke most highly of the benefit accruing; one owner having lost but two cattle, and believing he had saved himself some thousands of pounds. Still, in the yard you would see cattle without the tail, or only a portion remaining or not injured; the loss he ascribed as due to the putrid condition of the lymph setting up more fevered action, and the tail not having sufficient vitality to withstand it. It appeared that in the second yard referred to, Cattle Plague appeared last year and the whole stock was lost.

Mr. A. BROAD said he believed where inoculation had been performed, it was still adhered to. He did not think it was so much a question of

whether it caused disease, or cured it : he did not think it actually caused it, but it might set up some condition of the blood giving less liability to an attack.

Mr. SHAW inquired if Mr. Mole knew how they were operated upon.

In reply he was informed, by the tail, or by suture : a slit being made in the skin, a piece of lung was inserted, and the tail bound with tow, being removed in a couple of days, the parts washed, and tincture of ammonia applied ; and that the loss of tails was greater if the piece of lung were large.

Mr. SHAW had inoculated cows by passing a little bit of thread or silk (as a suture) saturated with lymph ; this was attended with some swelling of the tail which had not gone far, but where a slit had been tried instead, it had sloughed considerably.

Mr. MOLE said one of the owners he referred to did his own, and the other owner did them after his plan—that being a suture made with a diamond-pointed saddler's needle.

The meeting was then adjourned. Present—twelve Fellows and one visitor.

JAMES ROWE, *Hon. Sec.*

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE fifty-fourth quarterly meeting of the Association was held at the Medical Institute, Hope Street, February 22nd, 1878, Mr. W. Woods, Vice-President, in the chair.

There were present Messrs. Heyes, Morgan, Reynolds, Wm. Elam, C. W. Elam, Stevenson, Moore, Watson, Lloyd, of Liverpool ; A. B. Wren, Birkenhead ; J. S. Menzies, St. Helens ; T. Greaves, T. Hopkin, E. Faulkner, Manchester ; Wm. Dacre, Altrincham ; W. Whittle, Worsley ; and the Secretary.

Letters and telegrams of apology were received from Messrs. J. Gerrard, J. and A. Lawson, Sam. Locke, T. Taylor, J. Carless, H. J. Cartwright, J. H. Welsby, and W. Lewis.

The minutes of the previous meeting were read and confirmed. A letter was received from Mr. T. G. Procter, acknowledging the honour of his election as President, but stating that he could not undertake the duties, and therefore begged to be allowed to decline the acceptance of the office.

It was proposed by Mr. REYNOLDS, seconded by Mr. MORGAN, and carried unanimously, that while receiving Mr. Procter's refusal to accept the office of President, they wished to convey to him, throngh their Secretary, their disappointment and sorrow at being thus deprived of his valuable services in that capacity ; and to assure him that the Association would have considered itself honoured by his accepting the office.

Mr. Wm. Whittle was then unanimously elected President, and the following gentlemen were duly elected members of the Association : Mr. A. B. Wren, Birkenhead ; Mr. Darwell, sen., Mr. Darwell, jun., Northwich ; and Mr. Menzies, St. Helens.

Mr. REYNOLDS then resumed the discussion of Mr. Greaves' paper on "Germs : the part they play in the production of some Diseases ; and Disinfectants : the part they play in preventing and modifying Disease." He commenced by referring to the great importance of the subject, and the modification which the germ theory, as conceived by its advocates, was likely to effect in the treatment and prevention of certain diseases, should it become thoroughly established. But, while acknowledging the great value of the experiments which had been made with reference to this subject, and agreeing in the main with the facts recorded—so far as they went—as the result of these experiments, yet he did not consider that the doctrine, "that

certain contagious diseases were produced by certain varieties of *Bacteria*," had by any means been proved. He instanced several contagious diseases which, in his opinion, did not fit in exactly with this theory. These diseases were Glanders,—a contagious malady which was, in his opinion, capable of being produced without infection, under the influences of certain circumstances and surroundings ; Variola Ovina,—a contagious disease which was said to be incapable of being propagated by inoculation with the blood of an animal affected ; and even with regard to the Splenic Fever itself—that disease which, above all others, was considered by the germ theory advocates as the one most certainly proved to be due to the presence of the *bacillus anthracis*—he said it was a curious fact that, while the *bacillus subtilis* and the *bacillus anthracis* were identical in appearance, cattle should not be liable to Septikæmia, while they were very liable to anthracoid diseases. If contagious diseases are due to germs, these germs must be almost constantly present to a greater or less extent, and, consequently, both man and animals must be constantly liable to be brought into contact with them. But as a very small percentage of either, under ordinary circumstances, becomes actually affected by such diseases, it follows that other factors are essential to the production of disease—such as the liability of the subject, germs or other conditions present, etc. He concluded by urging every member to endeavour to do what he could, in recording all facts relative to the subject, and ventilating them at such meetings as the present, in order to throw light upon a matter of such vast importance to the profession.

Mr. GREAVES referred to the experiments of Professor Tyndall and others in support of the germ theory, and was of opinion that, although *bacteria* were found in health as well as in diseased constitutions, and no difference might be discoverable in their physical characters, yet, nevertheless, their vital actions were as specifically distinct as their origins were. As a powerful disinfectant, he strongly recommended carbolic acid in the form of vapour.

Mr. ELAM considered that the power of producing a disease lay, not so much in the germ, as in the individual affected by it. He referred to the fact that some people spent almost their entire lives in the midst of infectious diseases, and yet escaped infection ; while there were others who had a peculiar idiosyncrasy, and could not be successfully vaccinated. And even parasitic germs do not always fix on healthy lining tissue. He described a steaming apparatus which he considered a most efficient mode of applying the fumes of carbolic acid as a disinfectant.

Mr. DACRE referred to Glossanthrax, which, according to Mr. Greaves, was a disease to which this germ theory would more particularly apply ; and related the history of a herd of young cattle which he attended for this malady. His treatment was a purgative, change of diet, and the insertion of setons in the whole of the herd. The treatment proved successful in arresting the further spread of the disease. If, therefore, the disease was due to the presence of a living germ, what explanation could be given of the success of his mode of treatment? He was of opinion that the principal cause of this disease was dietetic in its character.

The PRESIDENT said he was also of opinion that those anthracoid diseases were due to dietetic causes, and referred to the fact that, among the sheep reared and fed on his own farm, he never saw a case of Anthracoid Erysipelas ; but when the same sheep were removed to different pasture, and then brought back to his own farm, a number invariably became affected with the disease.

Mr. HOPKIN considered that it was only the products of *bacteria* that did the harm, by acting on the system as a poison ; and that when the system was vigorous, it would be able to resist their poisonous influence. He con-

sidered that the advantage of the antiseptic mode of treatment in surgery had been thoroughly established, and that hospital gangrene had become comparatively rare since its introduction.

Mr. WATSON was of opinion that internal disinfectants ought to be more largely employed in the treatment of contagious diseases, and instanced several cases in which the internal administration of carbolic acid had been very beneficial.

Mr. MOORE referred to the fact recorded, that the fungus spores found on orange-peel were identical with the spores in Whooping-cough, and that they were shown by actual experiment to be capable of producing the disease.

Mr. REYNOLDS, in reply, stated that he was somewhat disappointed at the result of the discussion, inasmuch as his own opinion was very much in favour of the germ theory of disease ; and he had adopted the opposite view of the question on the present occasion in order, first, to raise a discussion, and secondly, to give him an opportunity of bringing forward some of the difficulties opposed to its full acceptance, which presented themselves to his own mind, in the hope that the members might be able to remove them in their discussion of the subject.

DUNCAN HUTCHEON, *Hon. Sec.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE usual fortnightly meeting of this Association was held on the 31st January, the President, Professor McEachran, in the chair.

The first paper read was on Laminitis (Inflammation of the Feet), by Mr. DANIEL LEMAY, who explained that it was produced by a variety of causes, especially over-driving, drinking cold water when heated, and over-gorging the stomach. From experience in a large number of cases, he favoured the treatment followed at the College—viz., removing the shoes, cutting down the crust out of pressure, hot foot-baths and poultices, purgative and febrifuge medicines, followed after the subsidence of the acute symptoms by broad, heavy-toed bar shoes and cold clay. Dr. Cressy proposed a perpendicular incision into the toe of the foot with a saw, to allow of the escape of the effusion, and thus lessen, if not prevent, separation of the horny from the sensitive laminæ. The discussion on this paper was animated, and many suggestions of a practical nature were elicited.

Mr. MCMARTIN next read a lengthy and interesting paper on Skin Diseases, in which he reviewed the learned writing of Gerlach, Hering, Gamgee, and others, explaining the different varieties and causes of skin eruptions, Eczema, Mange, Grease, etc. He also referred in depreciatory terms to clipping horses. During the discussion that followed, the latter subject was fully considered.

The PRESIDENT, in summing up, expressed great pleasure in finding that this barbarous practice was so unanimously condemned by the members, as he was convinced that in a climate such as ours it was more than cruel to deprive these poor animals of nature's warm covering, to protect them from the wintry blasts ; he was convinced that it was a fruitful source of disease, and instanced several cases now under treatment for Rheumatism from this cause. He could scarcely conceive anything more cruel than clipping cab and other working horses, whose duties necessitated their standing for hours in the streets.

At next meeting a communication on Shoulder Slips was to be read by Mr. WINSLOW, and a paper on Shoeing by Mr. JAKEMAN.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly council meeting held on March 13th, the Hon. W. EGERTON (chairman), reported that Mr. DUGUID had presented the following report on the outbreak of Anthrax in Lincolnshire :—

"On Monday, February 18th, 1878, I received information of a most extensive and rapidly fatal outbreak of Splenic Apoplexy in a herd of cattle belonging to Mr. W. N. Mason, Rigsby, Alford, Lincolnshire. So great and sudden was the mortality, that forty-six animals died in two days, and it was at first supposed that they had been poisoned.

"Mr. Gresswell, veterinary surgeon, Louth, was called in, and after a careful examination of the affected animals, and a *post-mortem* of three that had just died, he pronounced the disease a severe form of Splenic Apoplexy. I examined portions of spleen and other organs sent me, and found the long *rod bacteria* characteristic of this malady in the blood obtained from them.

"It is seldom that we find more than a few animals of a herd succumb in such outbreaks ; but in the present case only two animals survived out of a total of fifty that were in the portion of the buildings where the disease appeared. One of these, a yearling heifer, was affected, and recovered ; the other, a bull, had only been brought to the farm two days previous to the outbreak. The animals were of different ages. Two were fatting cows ; twenty-two were cows in calf, or giving milk ; one was a sucking calf ; and the remainder were yearlings. The animals were all apparently well on the evening of Friday, February 15th ; but on Saturday morning the herdsman found one cow lying dead, and twenty-one more died during the day, and by Monday morning forty-six had succumbed ; one more died on Monday, and the sucking calf on Tuesday,—making a total mortality of forty-eight animals from the 16th to the 19th. In another portion of the buildings twenty-six heifers in calf have remained healthy. At the request of Dr. Sanderson, I visited the farm, with a view of ascertaining, if possible, the cause of the outbreak, by inquiring into the feeding, water supply, and state of the buildings. The farm is situated on the chalk hills, and quite removed from the extensive marsh lands of the county. The farm buildings are in very good condition, and are situated on a slope, with a north-east exposure, the substratum being chalk. A brick wall divides the buildings into two ; the upper portion is divided into four open yards, in which twenty-six heifers in calf have been kept all the winter in perfect health ; the lower portion consists of two open yards, in which the yearlings were kept, and a range of covered stalls, in which the older animals stood. In this lower portion the mortality occurred, and, as already stated, only two out of fifty animals survived.

"The water supply is the same throughout. The rainfall collected on a chalky road that runs through part of the farm is stored in a pond, from which it is supplied by syphon and ball-taps to the whole of the buildings. The pond is fenced in so that no animals can get into it ; and from the fact that it stands above the level of the yard, there can be no drainage from them into it. The water deposits a considerable amount of fine chalky deposit, and contains organic matter, probably from the decomposition of vegetable matter, straw, etc., blown into it. An analysis of the water has not yet been made ; there seems no ground for suspecting this as the cause of the disease.

"Although the water supplied to all the animals was the same, the feeding in the upper yard was totally different from that where the malady appeared. The animals that are still healthy were fed on linseed and cotton-cake (about 1½ lb. of each daily) and barley straw.

"The animals that became affected were fed on linseed and cotton cake in

various proportions—the milch cows and the cows in calf about 3 lbs. daily, and the yearlings about 3½ lbs. The feeding beasts were receiving 5 lbs. of cake daily, and about 3 lbs. of a meal of ground rice, wheat and barley. In addition to this, the whole of the animals in the lower portion of the buildings were receiving brewers' grains and barley chaff.

"The grains were brought fresh from the brewery, and stored for a short time in old sugar casks. On the 14th February, some fresh porter grains were fetched from the brewery. The lad who brought them stated they had a peculiar odour, which made him feel sick. The grains and chaff were mixed, and allowed to lie for twenty-four hours, the animals were fed with this mixture on Friday evening, and the mortality began on the following morning.

"Dr. Voelcker has analysed a sample of these grains, and found nothing poisonous in them. From the fact that only those animals fed with grains fell victims to the disease, it seemed of the first importance to feed some more animals with them, and thus prove whether the grains were the direct cause. Two animals have been fed at the Brown Institution for ten days with some of the grains sent up by Mr. Mason, and they have continued in perfect health.

"I have further to report that on March 6th a bullock was found dead in another yard on the same farm, but at least half a mile from the scene of the former mortality. A *post-mortem* examination made by Mr. Gresswell, who was again called in, showed that the cause of death was Splenic Apoplexy. This was one of a lot of fifteen bullocks about two and a-half years old, that had been fed for the past six weeks in open yards, with 5 lbs. daily of a mixture of equal parts of linseed and cotton cake and barley straw. Mr. Gresswell, observing some premonitory symptoms in some of the others, ordered a change of food, and instead of cake gave bran mashes, a few roots, and no straw, in addition to which he prescribed hyposulphite of soda medicinally.

"I visited the farm again on the 7th March; and Mr. Cope, the chief inspector of the Veterinary Department of the Privy Council, arrived on the evening of the same day.

"On Friday, March 8th, the whole of the remaining fourteen bullocks were examined, and four showed an internal temperature of 103° or over. These were separated for closer observation.

"On Saturday the temperature had declined, and up to yesterday (March 11th) no further cases had occurred.

"In this instance only one animal died, and it is very doubtful whether this was a fresh outbreak, or whether it was a continuation of the former, due to some communication between the two yards. The same man had fed all the animals.

"The water supply to this yard was separate from the other; and, as there seemed a slight possibility of drainage from the yard getting into the storage pond, water is now being carted from a well for the supply. It has long been known that in this disease *bacteria* are found in the blood, and recent experiments show that these pass through certain stages of existence, when cultivated in some animal fluids. In connection with the present outbreaks, experiments are being conducted to ascertain if they are capable of multiplying in other than animal fluids; and if such proves to be the case, a most useful and interesting field of observation is opened up in connection with the causes of such outbreaks."

Dr. VOELCKER stated that he had examined the grains and chaff which had been given to the animals in question, and had found no animal or vegetable poison; adding some further information in reference to the action of certain classes of food

Mr. DENT expressed the hope that the Veterinary Committee would thoroughly investigate this case, which was one of those ravages of a disease which had so frequently baffled the efforts of veterinary surgeons to arrive at its cause.

Professor BROWN said that two distinct views were at present held on this subject. Dr. Burdon Sanderson, and other of the most advanced pathologists, held that in all cases it must have been caused by contagion from a previous outbreak, as certain organisms or their germs were always found in the blood of animals affected with Splenic Apoplexy. This view had never yet been properly tested in this country. If it were true that these organisms or their germs were essential to the production of the disease, all questions connected with the food which had been given to the animals had no longer any importance; and it was perfectly true that cases of the disease had been known to occur under all the conditions contemplated by the holders of this view. On the other hand, a large number of eminent practical veterinary surgeons held that the disease only occurred under peculiar conditions of soil and herbage, such as would be caused by the absence of drainage, by excessive stocking, by abnormalities of climate, and so forth; but the difficulty attending on this view was that the disease only occurred on those farms on certain occasions, and generally at very long intervals.

The report of the Committee was then adopted.

Selection.

Earl CATHCART reported the recommendation of the Committee that Mr. George Fleming, Veterinary Surgeon 2nd Life Guards, be elected an honorary member of the Society, in recognition of his eminent services to veterinary science.

This report was adopted.

Parliamentary Intelligence.

HOUSE OF LORDS.

CONTAGIOUS DISEASES (ANIMALS) BILL.

March 5th.

THE Duke of RICHMOND and GORDON having moved the second reading of this Bill,

The Marquis of RIPON made some observations, not so much on that part of the Bill which consolidated existing Acts as on those portions which had been modified. When it was proposed in this measure to impose stringent restrictions for the purpose of getting rid of Pleuro-pneumonia and Foot-and-mouth Disease, the noble Duke was bound to prove first that they were necessary, and secondly that they would effect the purpose they had in view; but he contended that his noble friend had not established a case of necessity with regard to some provisions of the Bill, and it was doubtful with regard to others whether their purpose would be effectual. The opinion he had himself expressed the other night, that no restriction which could be practically adopted would stamp out Foot-and-mouth Disease, was shared by other persons; but he was bound to admit that the weight of evidence was against him. Professor Brown had suggested that the whole country should be divided into districts, placing in each one an inspector, held responsible to the central department. His noble friend did not propose in this Bill to divide the country into districts, but his intention appeared to be to wait until disease declared itself, and then frame a district, which might

be a large or a small one. If the district were small, the restriction would be small also; and if large, so would be the restriction. No witness was examined representing Irish farmers before the Committee of 1877; but they had the evidence of one Irishman on the subject—that of Mr. Kavanagh, the member for Carlow county, who was a member of the Committee of 1873. That gentleman presented a separate report. It was not accepted by the Committee, but it contained a full statement of his opinion upon the subject—to the effect that legislative restrictions would occasion more loss to the public than the Foot-and-mouth Disease would in its most virulent form, by interfering with the freedom of trade. The Bill further provided that all foreign animals should, after the Bill came into operation, be slaughtered on their arrival at the port of debarkation—which would not have the effect of preventing the spread of disease, the only effectual way of preventing it being by stopping entirely the importation of live animals; but with regard to the Foot-and-mouth Disease, it could very easily be detected, and was of short duration, and it was very soon to be discovered after the arrival of the animals whether it existed or not. Consequently the present precautions against that disease were sufficient. According to his view of the matter, the proposals contained in the Bill were for the purpose only of stamping out Pleuro-pneumonia; and with respect to that disease the Act of 1869 gave very large powers indeed, and which nothing but the necessity of the case justified, to the Privy Council to exercise a very wide discretion with regard to foreign cattle. This Bill proposed to take that discretion away and to substitute for it the iron rule of a legislative enactment. He would prefer that the matter should rest on the exercise of the responsibility of the Minister, and before they were asked to consent to such a change the President of the Council was bound to give Parliament his reasons for this change, but at present he had failed to do so. The only reason that had been urged for the proposed change was that it would not so much fetter the trade of cattle importation if they laid down a fixed rule instead of leaving it to the discretion of the Privy Council, and so far as the evidence went he found the trade greatly preferred it to the existing system. He very much regretted it, and thought that it was a great mistake. He greatly feared, from all the information he had been able to obtain, that, by compelling the slaughter of all cattle at the port of debarkation, they would greatly interfere with the supply of meat from America and Canada. He felt so strongly on this point that it was his intention to move in Committee an amendment in the sense of their last report. He had another suggestion, which he hoped the noble lord would not hesitate to accept, and that was—that a provision should be introduced into the Bill to make its operation temporary. If the system introduced by the Bill did not succeed, it would hamper both the external and internal trade, and be open to most serious objections; and if the foreign trade were once diverted it might not easily be recovered. It was thus very important that the Bill should be merely temporary. He would not have pressed the matter further but for an expression made use of by his noble friend. It had been said that the whole reason for getting this restriction thrown upon the foreign trade was for the purpose of introducing protection. It virtually amounted to protection. He made no such charge against his noble friend, who, he had no doubt, had introduced the Bill with the most perfect good faith, and without any *arrière pensée* whatever. Neither did he make the charge against the great body of farmers; though he would have had more confidence in expressing that opinion but for a circumstance which occurred in the Committee of 1877. In the report of that Committee there appeared a paragraph, in which it was laid down as the opinion of the Committee that the restriction on foreign trade should not be imposed unless restrictions were to be imposed also on the home trade.

But he found that Mr. Chaplin, the member for Mid-Lincolnshire, had voted against that very reasonable paragraph. Even if the home restrictions were introduced, should they become lax and inefficient, nothing would remain of this Bill except what was pure protection. The restriction on the foreign trade would be carried out immediately under the orders of Government; and unless the restrictions with regard to the internal trade were carried out with equal strictness, it would be the duty of Parliament strenuously to resist, and that was the reason why it was important that the Bill should be temporary. He would be very glad if his noble friend would consent to refer the Bill to a Select Committee. There had been already two Committees on the question—one in 1873 and one in 1877—and they came to almost contradictory recommendations. No regard was taken in 1877 of the feelings of Irish farmers, and it would be very desirable that their Lordships should be much more fully informed as to the feelings of those who would be affected by the measure, both in the foreign trade and in the home trade, than could be the case in the course of debates in this House. He therefore ventured to suggest that the Bill be referred to a Select Committee.

Lord DUNSANY, in supplementing the remarks of the noble Marquis, said that the Committee of 1877 had thrown no light whatever on the Irish side of the question. It would, perhaps, be new to many noble Lords to hear that there were 16,000 horned cattle in Ireland more than in England, and the graziers were men, probably, of a higher class than in England. It was thus of importance that the Irish side of the question should be ascertained. The measure was not for the producers of meat alone, but for the consumers also, and the first effect of it would be to raise the price of food at a moment when trade was slack and wages were low. It was certain there would be much misrepresentation. An agitation was already rising in the North of England; and he would, therefore, ask whether it would not be as well to throw over the unessential parts of the Bill in order to preserve those which were of very great value. He thought the Bill did contain provisions of very great public importance; but in reference to Foot-and-mouth Disease he held that the necessity of dealing with it was not at all a settled point. He quoted a number of statistics to show that in Ireland deaths from Foot-and-mouth Disease were almost unknown. One grazier of 1600 cattle had during ten years lost only 0·3 by the disease; another who fed 1200 cattle and 1000 sheep each year had, during the whole of his life, lost only one cow and about twenty sheep from the disease; a third, who fed 600 cattle and 500 sheep each year, had, during fifteen years, lost only one cow by the disease. These were very remarkable statistics. They had not been taken by the Committee, but they should not remain unknown. It might be asked how the disease was met in Ireland. They met it by doing nothing, and it would be found to be true that the less interference there was with Foot-and-mouth Disease the better. Some did separate the sick cattle from the others, and that was all. One feature in the Bill he objected to, and that was that it would reverse the old maxim of law, and hold a man to be guilty in connection with his cattle before he was tried, and, it might be, proved to be innocent.

Earl SPENCER begged to be allowed to make a few remarks on the Bill, as he had incidentally been mixed up a good deal with the Cattle Plague inquiry, and also with the question of the best mode of preventing it by administration. He was a member of the Commission which sat in 1865 and 1866, the legislation founded on the report of which Commission had been very successful. He had, moreover, for five years, whilst he was in Ireland, had charge of the administration of the laws applicable to cattle. Besides dealing with Cattle Plague itself, the Bill also applied to other diseases from which they might suffer. First of all, he desired to make a few remarks

relative to the manner in which the Bill affected, or was designed to affect, Rinderpest. Regarding that, he admitted that the disease was one of the most dangerous and fatal that could be introduced among the flocks and herds of the country. He quite agreed with what had been said as to the necessity of maintaining free trade. The principle of free trade applied equally to cattle and corn. Some great necessity would have to arise before putting great restrictions upon the trade of the country. There ought to be no more interference with the cattle trade than with any other trade in the country. The Royal Commission with which he was connected reported that stringent restrictions should be taken to prevent the introduction of Plague into this country. Slaughter at the port of debarkation, and quarantine, were recommended; and at the time he most heartily thought such stringent measures were necessary to avoid a great danger. Since then, however, great changes had taken place with respect to the regulations applying to the home and foreign traffic in cattle, and it had been found that these need not be so strict as to interfere with the freedom of trade. For instance, one of the most severe outbreaks had occurred last year: and what was the result? The Plague broke out in January, and was stamped out in May. That illustrated what could be done by the vigorous measures which the Privy Council were already able to enforce. But though these powers were already pretty strong, and in some cases almost sufficient, he thought some improvement might be made with respect to internal regulations. For this reason he highly approved of taking out of the hands of the local authority and placing in the hands of the Privy Council all powers of management when an outbreak of Plague should occur. Promptness, energy, and uniformity were necessary when such a calamity arose, and these would be best displayed by the central authority. He did not very much like the idea of taking funds out of the imperial exchequer as compensation for loss; but it was right to adopt that principle when the authority ceased to be local and became imperial. Coming to the question of Pleuro-pneumonia and Foot-and-mouth Disease, he was constrained to admit that enormous losses had arisen from those diseases. From the disease itself the breeders perhaps did not suffer so much as from its consequences. Owing to the disease abortions were produced, cattle were delayed in being brought to market, and hence arose great loss. In theory, to put it without exaggeration, he believed these diseases could be stamped out. Vaccination as applied to human diseases proved that the principle of isolation operated with the greatest success. But apart from theory, the question came to be, would the general body of farmers really obey the regulations which the Bill proposed to lay down? That was open to doubt. Even the temporary restrictions of former days were in many cases disregarded, and there was a danger that the permanent laws would be more open to infringement. He would ask whether the Bill was likely to be successful. He was strongly in favour of its principle, but he did not think they were justified in introducing a measure of this character, which interfered materially with the meat trade of the country, unless they felt certain it would secure the benefits desired. He heartily supported the view which had been expressed that the operation of the Bill should be limited to three years. If it then proved successful it could be extended. He would move that the Bill be limited in its operation to three years. His noble friend who spoke before him began by saying that probably their Lordships were not aware that there were more Irish than English cattle. That was absolutely correct; but if they took England and Wales, the number of cattle was 4,590,000, whilst for Ireland it was 3,996,000, showing a preponderance in favour of the former. He thought Irish cattle should be dealt with the same as the English cattle. It had been said that there was more disease in Ireland than in England, but he believed that to

be an entire fallacy. When, however, cattle had to be moved from that country for the purposes of trade, they had to go through very great hardships, and thus became liable to any contagion that might arise. There was a great deal of prejudice in Ireland with regard to Pleuro-pneumonia and Foot-and-mouth Disease; and he had frequently, when in office, urged upon deputations that if the Irish did not submit to the same regulations as the English did they would throw themselves open to attack and make themselves liable to be told that their cattle must be treated as foreign cattle. If the Irish would not now submit to the same regulations as the English, there would be some reason for treating them in that manner.

Earl FORTESCUE tendered his best thanks to the noble Duke who had introduced so very useful a measure. He quite agreed with the statements which had been made as to the immense mischief occasioned by Pleuro-pneumonia and Foot-and-mouth Disease. The exclusion of diseases from vast centres of population more than compensated for the loss of a few head of cattle which might otherwise have been obtained. He could testify that there had been a steady increase in the quantity of meat killed in the country and sent to London dead. On the score of humanity there could be no doubt that this plan should be carried out as much as possible. The number of cattle maimed, suffocated, or trampled to death in steamers during stormy weather was very considerable; and in some cases every head of cattle had been sacrificed, from the necessity of shutting the hatches. The restrictions, he believed, would be as much for the benefit of the dealer as for that of the consumer. He could remember, on a former occasion when restrictions were imposed, that not only was Pleuro-pneumonia and Foot-and-Mouth Disease reduced, but the price of meat was very much lower than when the trade was unrestricted. The measure was a wise one from an economical point of view.

The Earl of BELMORE said he believed he was right in saying that at a meeting held the other day of persons representing both sides of Irish political opinion an almost unanimous opinion was come to that no difference should be made between Ireland as a producing country and England as a consuming country. All restrictions in England would be useless unless they were extended to Ireland; but there was a strong opinion in that country that excessive restrictions would be worse than the disease they were intended to remedy. One of the matters which would be felt in Ireland would be the size of the districts. If they were made very large great inconvenience would be felt. Very great powers were given to the Council in Ireland, and he would suggest that whenever Orders in Council were to be passed affecting the interests of a district, it should be arranged that those Orders should be referred to a Committee of the Council, to which members should be summoned who were acquainted with the subject. His observations were not made in any spirit of hostility to the Bill.

Lord EMLY said there was a strong feeling in Ireland that it would be a mere act of justice to refer this Bill to a Select Committee. He suggested that Ireland should be placed, as Scotland was, under the control of the Lord President of the Council in regard to these matters, and that the whole of the operations of the Bill should be carried on by the same central authority. With regard to Foot-and-mouth Disease, if the ports of Waterford, Dublin, Cork, and Drogheda, were proclaimed as infected districts, it would put an end to the exportation of cattle from that country to this for some considerable time, though there might not be disease in any other part of Ireland.

The Duke of RICHMOND and GORDON.—"I shall endeavour to trespass upon your time, my Lords, as shortly as possible; but so many points have been raised in the course of the discussion which has taken place, that I must claim your attention while I refer to them. It is because I believe there is a reasonable hope of this measure being successful in stamping out

Foot-and-mouth Disease and Pleuro-pneumonia that I trust your Lordships will pass the Bill. It has been complained that Irish interests were altogether neglected before the Select Committee. Now, I find that the Committee consisted of twenty-seven members. Of these five hon. members represented Irish constituencies—viz., Mr. Corry, the member for Belfast, Mr. Murphy for Cork, the Hon. Charles French for Roscommon, Mr. King-Harman for the county of Sligo, and Mr. E. Dease for Queen's County. These hon. gentlemen were most assiduous in their attendance; and they were asked, on various occasions, whether they wished to call any Irish witnesses before the Committee, but they declined to do so. Therefore, I think I am justified in saying that—at all events upon that Committee—Irish interests were not neglected, and that every opportunity was given for the calling of witnesses who might wish to express their opinions as regards Ireland. With reference to what has been called the protective view of the provisions in this Bill, I may state that this measure has not been brought forward with the view of benefiting one interest at the expense of another. We believe that in introducing this Bill we are doing that which is for the benefit of the whole community, and we are not attempting to legislate in any way at the expense of the consumer for the benefit of the producer. We believe that the interests of both are identical, and that if by any measure we can bring about a state of things which shall put an end to disease in this country we shall increase the amount of supply, and, not being so dependent upon foreign importation as we are at present, we shall reduce the price of meat to the different classes of the country. With reference to the complaint that we did not adopt the recommendations of the Committee of 1873, I thought that until I had an opportunity of looking further into the whole question, and until I was able to get information, which certainly I was not possessed of then, it was not advisable hastily to legislate upon so important a subject, but that it would be better to wait, and then bring in, if necessary, a large and comprehensive measure. With respect to the recommendations of Professor Brown, to which the noble Marquis alluded, I cannot see that I have, in the statement I have laid before your Lordships, departed widely from them so far as districts are concerned. The difference is this: whereas Professor Brown's suggestion was for districting the whole country, whether the disease is there or not, our object is to confine the restrictions to those portions where the disease actually exists. I wish to give as much freedom as possible to trade throughout the country, and therefore we take the power of narrowing the districts in the smallest possible space, in order not unnecessarily to interfere with the movement of the cattle. The case which has been supposed by the noble Lord opposite (Lord Emly) as possible in Ireland, represents a state of things which I can hardly imagine as likely to take place. The object we have in view is to treat all parts of the United Kingdom alike. If the same restrictions are not applied to Ireland as are adopted in England, then it is quite impossible to treat Ireland in an exceptional manner, because our object is to stamp out Foot-and-mouth Disease. If that disease is not stamped out in Ireland it may come to this country, unless Ireland is treated as if it were a foreign country. I will not follow the noble Lord (Lord Emly) into the proposal that, being President of the Council in England, I should also act in the same capacity for Ireland. I am afraid that is a somewhat Utopian idea, which some of the noble Lord's fellow-countrymen would scarcely share with him. It has been said that in a portion of the country with which the noble Marquis opposite is connected the farmers generally would not submit to the restrictions laid upon them in this Bill, and reference has been made to the evidence of a gentleman competent to give an opinion on this subject. But I find that some of the remarks of the same witness show that the farmers would submit to restrictions for the purpose of stamping

out disease, especially Foot-and-mouth Disease. There is one particular in regard to which I disagree with the witness. He was of opinion that cattle might be imported, subject to inspection. It is there that I disagree with him, because there is no system of inspection known to us by which we can secure that some disease will not get into the country, unless the animals are slaughtered at the port of landing. We do not propose to have a general order with respect to all fairs and markets throughout the country, but we set out in the Bill that where the local authority shall discover any infected place —say a cowshed, for instance—the Privy Council, on being informed of it, may take in so much land surrounding that cowshed as they may consider necessary, and make that an infected district, to which these severe restrictions would apply. That district might merely be a single field. With reference to the necessity of restrictions to prevent disease coming from foreign countries, I find that in 1875 no less than 20,228 foreign animals were found to be diseased on landing at British ports, of which 19,913 suffered from Foot-and-mouth Disease. As long as you allow these animals to come into this country, so long must you expect, and you will have this complaint. I find where restrictions have been carried out, they have had the effect of getting rid of disease ; and we believe that if the powers we ask for are put into operation we shall be able to put an end to the disease altogether. I look with considerable distrust on this Bill having a partial operation, as the trade at the end of three years will be in considerable doubt as to what will then happen. I look to the increase of the dead meat trade to a considerable extent in a few years. The difference in the quantity of dead meat and live cattle sent to market was considerable, owing to the Cattle Plague restrictions of 1866. From the year 1873 to 1877 there had been brought from Aberdeen to London 31,651 tons of dead meat and 25,000 live animals—being at the rate of four times as many dead as live animals—which I look upon as conclusive evidence that the dead meat trade can be properly and successfully carried out, and at a cost of one halfpenny per lb., including commission and railway charges, and there is no reason why the same thing cannot be done from other places. With regard to the question of offal, I have made inquiries on the subject, and from the information I have received there will be no difficulty in carrying it into the manufacturing districts. I cannot agree that the operation of the Bill will raise the price of food for a moment ; and I deny that this can be looked upon as a landlord's Bill, or that it is capable of raising the rents. The Bill is popular throughout the country, and it is a measure looked forward to as one that will get rid of these diseases of which we complain. It may be that high-bred animals are more likely to take the disease than others ; but if it attacks them, it only justifies us in attempting to stamp it out. I am desirous of having the same regulations for Ireland as for England. We believe that we shall after a time successfully stamp out the disease, and prevent the introduction of foreign diseased animals into the country. We hope and believe, from the evidence obtained from foreign countries, by stringent regulations being placed on the importation of stock into the country, that we can stamp out the disease, and that upon these grounds we are justified in bringing in this measure. We hope there will be no need for making the restrictions permanent, and that they may be confined to those districts only where the disease prevails. The subject is one that must be dealt with by the central authority, and, that being admitted, it is clear that the payments to be made for the slaughter of animals by that central authority must be paid out of the Imperial Treasury, as it would be unjust to allow them to be slaughtered and compel the local authorities to pay for them. I propose to go into Committee with the Bill *pro formâ* on Thursday, in order to introduce two amendments not affecting

the principle, and to recommit it on the Tuesday following, when the regular debate might be resumed upon its details."

Lord GRANVILLE wished to make a few remarks on the future proceeding of the Bill. A strong wish had been expressed that it should be referred to a Select Committee, especially as no witnesses were examined from Ireland on the Committee that sat to investigate the subject. The noble Duke had said that in his opinion Pleuro-pneumonia and Foot-and-mouth Disease could be stamped out. The ex-President of the Council had told their Lordships that his opinion was different, and he had backed his opinion by some of the great professional experts of the country. He (Lord Granville) would not decide the one way or the other; but all these were points into which their Lordships should make some inquiry. What, then, was the harm of an inquiry? He had never known a case in their Lordships' House in which a Committee had been used as an instrument of delay.

The Bill was then read a second time.

March 7th.

The Duke of RICHMOND and GORDON, in moving that the House go into Committee, *pro formâ*, on this Bill, said: "I wish to offer a few remarks with reference to what passed in the debate upon this Bill the other evening. The noble Earl opposite (Earl Granville), towards the close of the evening, complained that I had not answered all the points which had been raised by my noble friend the noble Marquis (the Marquis of Ripon), who spoke first. I can assure him that it was from no want of courtesy towards my noble friend, but it was because I had simply overlooked a few of the many questions which he raised. The noble Earl asked why it was that we were not content with allowing animals to come from healthy countries, but sought to establish compulsory slaughter at the port of landing from all the countries of Europe." (A noble Lord opposite: "America.") "America is in a different position. I am rather doubtful, if America were left out, whether there would not be some danger of the most favoured nation clause coming into operation. But the noble Earl addressed himself to the countries of Europe, and I wish to state the following facts to your Lordships. At present cattle are prohibited from Russia, Germany, and Belgium. All animals are slaughtered at the port of landing from France and the Netherlands, in consequence of the Cattle Plague. Cattle are slaughtered at the ports of landing from Austria, Hungary, Greece, Italy, and Turkey. Animals from Spain, Portugal, Denmark, Norway, and Sweden, are admitted after a certain detention. I find that we had Foot-and-mouth Disease from Spain in 1871, 1872, 1875, 1876, and 1877; from Portugal in 1871, 1873, 1874, 1875, and 1876; Denmark in 1872, 1875, and 1877; and from Sweden in 1875 there were four cargoes with Foot-and-mouth Disease on board. The importation from Norway in 1877 being so small—viz., 110 head of cattle—it would be useless to exclude Norway from the chapter of those countries dealt with in the Bill. We believe it is advisable to prevent the introduction of Foot-and-mouth Disease into this country, and therefore it is that we propose to say that no animals shall come from those countries into this country alive. If severe restrictions have to be placed upon farmers in this country, in order to confine disease within the district where it breaks out, and to stamp out the Foot-and-mouth Disease, it is but justice to them that we should take all the means in our power to prevent the introduction of the same disease from countries abroad. Therefore it is that we intend to deal with foreign countries in the manner proposed in the Bill."

Earl GRANVILLE interposed a remark, deprecating any statement on the part of the noble Duke that might give rise to debate, because several noble Lords who took great interest in the subject were absent from the House,

being under the impression that the Committee on the Bill would be taken only *pro formâ* that evening, and that any further discussion would come on on Tuesday next.

The Duke of RICHMOND and GORDON.—"In the course of the debate the other evening it was impressed upon the Government that they should consider the course which they intended to take with regard to the Bill, and especially that part of it affecting Ireland. Having had an opportunity of doing so, I thought it was but respectful to my noble friend opposite who made the suggestion that I should avail myself of the first opportunity of informing your Lordships what course we propose to pursue. My object in rising was not to supplement any of the remarks I made on the last occasion, but rather to fill up some *laches* of mine in not answering a few of the points raised by my noble friend opposite. My noble friend found fault with the Government for setting aside the report of the Committee of 1873, and acting merely on that of the Committee of 1877. If my noble friend will refresh his memory by comparing the report of the Committee of 1873 with the provisions of this Bill on the subject of the Cattle Plague, he will see that we have done nearly everything recommended by that Committee; for we have limited the ports at which cattle may be landed to those places where proper arrangements may be made, we have provided for the slaughter of animals affected with Pleuro-pneumonia, and made it compulsory to slaughter animals that have come in contact with the diseased cattle. All those restrictions were recommended by the Select Committee of 1873. The Irish Government also have extended the order for compulsory slaughter to cases of Pleuro-pneumonia in Ireland. My noble friend suggested that this was a measure which ought to be referred to a Select Committee, on the ground that the case as affecting Ireland had not been fully made out, as it ought to have been made out, before the Committee; and I understood him to make that suggestion with no view of obstruction. I do not know whether he still adheres to the opinions he expressed the other evening; but if he does, I do not know any reason why he should offer any opposition to his suggestion. But as the English part of the question, besides other matters, were dealt with exhaustively in the inquiry last year, it should be now distinctly understood that the Select Committee to be appointed shall not be expected to go into the whole question again, but only into that branch of it which refers chiefly to Ireland. A noble Lord, sitting on the cross benches, the other evening said the number of horned animals in Ireland was much larger than the number of horned animals—that is, cattle—in England. I find that the number in Scotland and in Wales is larger than it is in Ireland; but, besides cattle, it should be remembered that sheep and pigs are subject to Foot-and-mouth Disease; and the total number of cattle, sheep, and pigs in Great Britain I find is 36,257,000, while in Ireland it is only 9,000,000. There are important bodies in Ireland who view with favour the Bill now before your Lordships. I see by a report of a meeting of the Council of the Irish Cattle Trade Association, that after some discussion they agreed to accept the Bill subject to certain alterations which they suggested in its provisions. It therefore appears that they view with favour the stamping out of disease as conferring a benefit upon the community. In conclusion, I have only to state that Her Majesty's Government will not oppose the suggestion to refer the Bill to a Select Committee.

The Marquis of RIPON said it would not be convenient for him to make any reply then to the noble Duke, but he would reserve what he had to say on the subject till the Bill went into Committee on Tuesday next.

Lord EMLY gave notice that he should move in Committee that the clauses of the Bill should not apply to Ireland.

The Bill then passed through Committee *pro formâ*.

HOUSE OF COMMONS—*March 15th.*

ARMY VETERINARY DEPARTMENT.

IN answer to General SHUTE, Mr. HARDY said that a new warrant, with reference to the Army Veterinary Department, had been prepared, and in a very few days would be submitted to the Treasury for confirmation.

Obituary.

THE death is reported of Mr. Thomas Stanley, of Edmonton, Middlesex, in the 87th year of his age. He graduated in 1826. The decease of Mr. Alexander Amos, late of Gorebridge, Midlothian, is likewise announced. He became a member of the profession in 1841.

The scientific world has lost one of its most distinguished and devoted members by the death of Claude Bernard, the celebrated French physiologist, who died on February 10th, aged 64 years. The work accomplished by M. Bernard was immense in quantity, while in quality it could not be excelled. He was the real founder of the experimental method in physiology, and his writings may be accepted as models of experimental science. His reputation extended far beyond France, and he was held in such esteem among his countrymen that the French Legislative Chambers decreed him a public funeral at the expense of the State.

From Belgium we receive tidings of the demise of M. Marcoux, Officer of the Order of Leopold, late army veterinary inspector, and veterinary surgeon to the Belgian Court. The funeral, which was military, was attended by a division of the first regiment of Guides, with its band, and a deputation of officers from the various corps composing the garrison of Brussels, as well as by a number of high civil functionaries.

Notes and News.

DISEASE AMONG PIGS IN GERMANY.—Foot-and-mouth Disease is prevalent among the swine in Berlin to such an extent, that in one week more than a thousand head were compulsorily slaughtered by order of the veterinary inspectors.

VETERINARY HONOURS.—It gives us much pleasure to announce that Professor Saint-Cyr, of the Lyons Veterinary School, M. Benjamin, veterinary surgeon, Paris, and M. Barrier, first class army veterinary surgeon, of the Remount Depôt at Guingamp, have been named Knights of the Legion of Honour. By decree of the Grand Duke of the Netherlands, Professor Thiernesse, Director of the Brussels Veterinary School, is made a Knight of the Royal Grand-ducal Order of the Oak Crown. The same distinction has been conferred upon M. Buffet, veterinary surgeon at Wiltz, Grand Duchy of Luxemburg. Professors Thiernesse and Wehenkel have been elected honorary members of the Kazan (Russian) Veterinary Institute. Professor Franck has been appointed Director of the Munich Veterinary School, on the death of Probstmayer, announced some time since.

At the monthly council meeting of the Royal Agricultural Society of England, Earl Cathcart reported the recommendation of the Committee, that Mr. George Fleming, veterinary surgeon, 2nd Life Guards, be elected an honorary member of the Society, in recognition of his eminent services to veterinary science.

Correspondence, etc.

SPURIOUS TITLES.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—Although the communications of your correspondents, "Nil Desperandum" and Mr. James Lambert, on the above subject in the number of the *Journal* for February, contain *some* truth, they do not contain the *whole* truth. Moreover, both of them fail to touch the real question at issue, as raised by your correspondent "Rebus,"—viz., "the right of a graduate of an Edinburgh college to affix the letters 'E.' and 'L.' to his name."

It is admitted that a Royal Charter is the source or origin of the right of both bodies to institute examining boards and grant licenses; and I tried to show that the documents were substantially the same, both in scope and purpose, and that neither of them conferred any special or exclusive right to any title, or conferred any privilege or immunities over the other, on any of the holders. When such is the case—and none of your correspondents have questioned my conclusions on this point—it becomes a matter of personal likes and dislikes what letters any one attaches to his name, and is therefore determinable by the ideas of the various graduates, and their notions of what suits their several purposes. True, they both tell us that the one is a diploma and the other a certificate only; but they fail to demonstrate the difference. In fact, it is an attempted distinction without a difference. The one confers as good a legal right to practise as the other. They are both accepted in courts of law, and until very lately were accepted as qualification for the army—indeed, some good men holding only the so-called certificate now hold high places in it; they are alike, therefore, for all practical purposes.

But the real matter which presses so heavily on the minds of your correspondents, and a good many more beside them, is the baneful effects which have been produced, and are to be perpetuated, by the Highland Society's action in the matter of veterinary certificates.

They tell us of the tremendous evils of disunion of the profession fostered by it, and enlighten us as to the exceedingly low social status that exists north of the border, in consequence of this action of the Highland Society: in fact, there seems no picture too dark or condition too lurid to be conjured up by the feverish imaginations of the opponents of this awful Society. But there are in this, as in every other question, two sides; and I would beg the liberty of being allowed to lay before your readers the other side of this "*burning question.*" I may state that I do not write as the apologist of the Highland and Agricultural, or any other society. This is a national question, and as such I espouse it. And the question fairly stated, from my point of view, is, What would have been the consequences to Scotland, and consequently the condition of veterinary science, but for this action of the Highland Society in seconding the herculean efforts of the indomitable and immortal William Dick? To know the cause and estimate the effects of such a course we require to look back to the years 1844 and 1845, when the Royal College of Veterinary Surgeons sent down a deputation to inspect and report on the teaching powers possessed by the Edinburgh College, which was one of the schools affiliated with the newly-incorporated Royal College of Veterinary Surgeons. Professor Spooner and Messrs. Mavor and Field, I think, formed the deputation; and the report was so hostile to the Scottish school and its founder, that they hesitated to publish it, and it was only brought forward on the express demand of Professor Dick, seconded by a Mr. Cherry. Professor Dick immediately, or very soon after, seceded from the Royal College, and induced the Highland and Agricultural Society of Scotland to institute a board of examiners, according to the provisions of its Charter, and confer

certificates of eligibility to practise as veterinary surgeons. This it has since continued to do, with credit to itself and success to its licentiates, and as I think, and shall try to show, with advantage to veterinary science. For had it not been for this episode, the history of the Royal College of Veterinary Surgeons would have been very different to what it is, and the science in a similar condition to what it then was; as it would have been under the control of a selfish cabal, who at that time were plotting the control of the newly-incorporated College by proposing very important alterations in the Charter—by proposing, in fact, a veterinary committee to control the action of the Council and the profession as well. But more of this anon. The independent mind of Professor Dick could not bear to be snubbed by such an one as the late Charles Spooner, whose strictures were homologated by his creatures in the Council: hence his action, and hence the action of the Highland and Agricultural Society.

Now, both your correspondents say that the action of the Society is the cause of "hurtful disunion," and also the cause of the low social status north of the Tweed. I question very much if the status of the profession north of the Tweed be any lower than the status of the profession south of it. There are undoubtedly high and low on both sides of the Tweed, and I am almost inclined to think there are as many of a high social and scientific standing, relatively considered, or in proportion to their numbers, in the north as in the south. And if we select two men who were typical of the countries, and contrast them, we shall find that the southern man would have kicked the beam, either in the social or scientific status. Charles Spooner and William Dick may be taken as fairly representing the countries, as each was at the head of the respective teaching establishments.

The latter, after a very successful career, and the odds very much against him, died honoured and respected, leaving a fortune of something like £60,000 for the endowment and maintenance of the College he had founded and carried on so successfully.

The former, at the head of the largest establishment in the three kingdoms, in the most wealthy and most important city in the world, died in comparative poverty; and, as a rule, when one's purse is empty, his social status is not of much consequence,—at least, he soon falls in the social scale. And it would be paying but a poor compliment to the present teachers of the science in the north, to tell them that they were not equal, socially and scientifically, to those in the south. Moreover, I believe that there are as many members practising in the north, holding as high a social and scientific position, in proportion to their numbers, as in the south. Our Robertsons, our Robinsons, our Andersons, and our Macgillivrays are typical examples of the class to which I refer. True, there are more practitioners in England, having more extensive and more lucrative practices, than there are in Scotland; but this is owing to the greater wealth of the former country than the latter, the ignorance of the English people generally, and their consequent gullibility.

"Scotchmen," says the Duke of Argyll, in the *Contemporary Review* for January, "are often accused of a narrow provincialism, and assuredly they have their own '*Idols of the Den*.' But our friends on the other side of the Tweed are quite up to the mark in this respect. Especially on a whole class of subjects which are among the most important in the world,"—and to these I think might be added the laws of health,—"there is no creature with so limited a range of vision as a genuine John Bull. In respect to these, he really never seems to have heard a sound or caught a glimpse coming from beyond the ancestral trees and the village spire which bound the horizon of his pleasant or his stately home." The princely fortunes made by such charlatans as Holloway, Clarke of Lincoln, and others of minor magnitude, attest the truth of these statements.

The Highland Society, as representing the views of Scotchmen generally, has always been in the vanguard of scientific improvement; and, indeed, had it not been for its action, the state of veterinary science would have been in a very much poorer plight than it is at the present day. It has given largely of its funds for the teaching of veterinary science, and also for the dissemination and investigation of scientific subjects, and likewise in the shape of medals as rewards for and incentives to study. Moreover, its rewards are open to the students of any school; and in this respect it contrasts favourably with its wealthy sister association of England. It has always adopted any improvements in the teaching and examining of its licentiates; indeed, it was the first to institute and insist on a practical examination of them, long before even the Royal College of Veterinary Surgeons could be induced to sanction it, and which the Royal Veterinary College succeeded in resisting so long. And when the Scottish element began to predominate in the Council of the Royal College of Veterinary Surgeons, so as to force them out of their beaten tracks, and lengthened the course of study, the Highland Society conformed to the pressure put upon it, and which it had been itself instrumental in inducing, by adapting its examinations to suit their requirements, and with a liberality and alacrity that would be inconsistent in the conduct of a body which, according to your correspondents, "is only a cause of hurtful disunion," and "the means of lowering the status of the profession."

A larger proportion of its licentiates have risen to eminence than of those educated in the English school, and passed only at the Royal College of Veterinary Surgeons. I admit, however, that there is something repugnant to the professional mind in the idea that their professional politics are presided over by amateurs; but when we consider the disrupted condition of the profession in Scotland, and the discordant elements of which it is at present composed, and also the success that has attended the action of the Society hitherto, we are compelled to admit, however unwillingly, that, under present circumstances, it is probably the best arrangement that could be adopted. And when we consider that our science is but a branch—although an important one—of the great subject of social economy comprehended in the term agriculture, we shall be inclined to extend our toleration to such a body in such circumstances, and feel grateful for its assistance and patronage, hitherto so unselfishly and ungrudgingly bestowed.

The disintegration of the profession in the north (so much to be deplored), and which may be explained on national peculiarity, renders any attempt at the formation of a strictly professional body for graduation purposes an impossibility, however much it may be desired. The national peculiarity to which I refer is the desire for progress, that is always manifested first in the north: because there are a great many ways of progressing, though there is only one way of standing still.

"Nil," however, tells us "that this Highland and Agricultural Society, and its certificate, are the great stumbling-blocks to the obtainment of an Act of Parliament to prevent quacks and quackery." If he can prove to me that they are so, I will yield the point. But I think in this he is presuming upon motive; and before any one can act upon other peoples' motives, he must first see and learn that these motives are prompting them to action. The Highland Society, or any of its members, have never done or said anything publicly that would warrant such a construction being put upon their intentions. I have little doubt that they will try to prevent their licentiates' certificates being declared illegal, in the event of such a thing being attempted; but this would easily be accomplished without frustrating the attempts of the body corporate to secure Parliamentary recognition of their claims to their titles. Nay, "Desperandum," if we could only convert

few of the great magnates of our profession to the belief that an Act of Parliament is necessary, the thing would be accomplished, despite the opposition of the Highland Society. But, unfortunately, they think such a cause is *infra dig.;* and keep telling us that *education*, "*individual virtue*," *honesty* and *uprightness*—indeed, all the *virtues*—combined with a "*thirty years'* probation," will render such a step unnecessary. If these ideas are not worthy of being described as "transcendental," which Mr. Lambert objects to, or super-eminent excellence, I must confess I do not know the meaning of the word.

Such, in brief, has been the cause and the effects of the action of the Highland Society, which your correspondents maintain has been "the cause of hurtful disunion" in the profession, and lowering of the social status in the north. I entirely fail to see it in that light, and I think the facts I have stated completely disprove their allegations. Indeed, I think it has been eminently beneficial to the profession, and is a most instructive and emphatic illustration of the doctrine of "good coming out of evil." Had it not been for this action of the Highland Society, we should have long since been at the mercy, and under the control, of the party at Camden Town, who have never sought to move in the direction of progress until they were compelled by forces from without. Even now we find that the same spirit which animated the governors and professors of that school in 1845, to get the control of the Council of the Royal College of Veterinary Surgeons, still exists, and occasionally manifests itself in attempts at getting royal charters to confer Fellowships and the like, to make them independent of any council or college. Indeed, sir, I believe they are now in what Beaconsfield would call "*veiled rebellion*"; for when they could not have the power of making Fellows themselves, they refused to be made Fellows by any other power, and rarely attend their Council duties; some of them, more honourable, resigned.

Now, sir, although I believe that one Royal College of Veterinary Surgeons is sufficient, if rightly conducted, for diploma-granting purposes in the three kingdoms, I decline to sacrifice my independence or the independence of my country at the shrine of expediency, when I think it possible it might come under the control of such a company, conducted on the most conservative selfishness, aiming at the exclusive management and control of the profession, and on all occasions twitting us on our poverty and our imperfect education. Have a care, then, my fellow-countrymen, how you give in your adhesion to such a scheme of centralization as is contemplated by the extinction of the last remnant of our country's independence in veterinary graduation.

We are no strangers to their tender-mercies. The men of to-day are the same in spirit as in 1845, and, so far as I am able to judge, will remain so.

If the advocates of centralization will give us a guarantee for the better behaviour of the English element in all time coming, I shall throw down my pen and pray for this long-wished-for consummation. But until this is done I shall continue to protest (although, perhaps, in vain) against the extinction of the independence of Scotland in a matter that I consider has been for her own and the profession's welfare.

So long as the Scottish element has the ascendency in the Council, we may rely on justice being done; but Fleming and Fitzwygram cannot live for ever, and "a king may arise who knows not Joseph." The concession of holding the annual meeting in the Scottish metropolis could not be granted without a struggle; and it was even maintained by a prominent member of Council that "it would be unworthy of the dignity of the Royal College of Veterinary Surgeons." It may be regarded as a "giving the *sop* to *Cerberus*," and will be likely to become a dead letter when English policy predominates; for the idea that it is a local London college is, says the President, "*widely spread*,

and pervades even the highest classes of society." For the policy and progress of the present Council I am grateful, and would not willingly "throw stones"; but I am of opinion there is more to be done in another direction, and am not so blinded by their efforts for good as to suppose that all efforts should cease, or that there are not rocks ahead in the directions I have indicated.

"Desperandum's" comparison of the R.C.V.S. and the profession with the British Government and Great Britain is just an illustration of what the R.C.V.S. should attempt—viz., the protection of its subjects—and an indication of the policy I should like to see it pursue. Meantime I must bid you and your correspondents adieu.

I am, dear sir,

Yours faithfully and fraternally,

JOHN GERRARD, M.R.C.V.S.

Market Deeping, *February 15th*, 1878.

CONTAGIOUS PLEURO-PNEUMONIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—Much as I deprecate paper controversy, I am compelled, very unwillingly, to refer to the remarks made by Professor Williams at the meeting of the Lancashire Association, on the 5th ult., as reported on p. 215 of your last issue.

Professor Williams there refers to himself, in alluding to the late Pleuro-pneumonia trial, as a victim to the law; and further on, that he found "*at least one animal suffering from Pleuro-pneumonia*"; and, after referring to the fact that "three veterinary surgeons saw the cow," and came to the conclusion that she was suffering from Pleuro-pneumonia," he says "Two professors, however, said the disease was not Pleuro-pneumonia." As I am one of the "two professors" referred to, I will supplement the printed reports which have appeared of the case—which reports, by-the-bye, are very meagre, and give outsiders very little chance of judging as to the merits of the question at issue—by briefly detailing its history, so far as I am concerned. On the 29th May, 1877, I was asked by the pursuer (Smith) to go to the City Abattoir to inspect the carcases and lungs of two cows, his property, which had been condemned by the county inspector as suffering from Pleuro-pneumonia, as to the existence of which disease he had his doubts; moreover, he expressed the fear that, as his brother-in-law had been heavily fined in a similar case, he also might be mulcted in damages, and he wished to protect himself. As a professional man, I had no alternative but to accede to his request; and on my arrival at the slaughterhouse, I found Professor Williams and his assistant (Mr. Johnston) there, and accompanied them to the booth in which the carcases were hanging. After looking at the carcases, and finding one healthy, the other the subject of *old pleural adhesions with Miliary Tubercle*, I walked across to the lungs of a cow suspended by a hook from the wall; and on proceeding to examine them, Professor Williams said, "I don't dispute these, Professor Walley,—they are healthy; those," pointing to some lungs lying on the floor, "are the lungs about which there is a question."

The lungs referred to were carefully and anxiously examined by me; and after finishing my examination I observed, "*I see no signs of Pleuro-pneumonia about these; it is an old case of Tubercle, pure and simple.*" Whereupon Professor Williams remarked, "I do not assert that *there is* Pleuro-pneumonia, but that *there has been* Pleuro-pneumonia about four or five months ago, and that *it* was the cause of the tubercle." My answer was, "Whatever disease there may have been there four or five months ago I do not pretend

to say; but I do not see any sign of Pleuro-pneumonia having existed even six months ago."

This conversation took place in the presence of several witnesses, and I had no alternative but to give a certificate in accordance with what I had seen.

It must be remarked that I had no idea at this time of there being even a probability of an action of damages being raised against Professor Williams; in fact, the pursuer was in dread that an action would be raised against him.

After my examination was completed, the pursuer said, "I shall telegraph for Professor McCall." He did so; and I can safely say that when that gentleman examined the lungs he had no idea as to the nature of the question at issue. His verdict was—"One set of lungs healthy; the other showing tubercle of very long standing;" and on being asked by the pursuer if there was any Pleuro-pneumonia, he unhesitatingly answered, "*None.*"

The pursuer then said to me, "I will obtain yet another opinion in the case;" and he telegraphed to Mr. Robertson of Kelso, who on his arrival was equally as ignorant of the question at issue as was Professor McCall. Mr. Robertson (owing to *post-mortem* changes) would not give an opinion on the condition of the healthy lungs; but after carefully examining those which were diseased, he gave a certificate to the effect "*that there was no Pleuro-pneumonia, but that there were extensive tubercular changes.*"

At the trial, on January 24th, I simply confirmed the opinion as embodied in my certificate; and made my evidence, so far as I could, consistently with my own position, favourable to Professor Williams's case.

Professor Williams endeavoured to show that, although the one animal had suffered from Pleuro-pneumonia some three months before, it was still in a condition favourable to the dissemination of the virus; and he endeavoured to strengthen his position by asking his senior advocate to call my attention to my own published opinion on this question, and to the subsequent remarks of Professor Fenein, as published in the *Veterinarian.*

As to the evidence brought forward in support of Professor Williams's case: I make no comment upon the *ante-mortem* opinions, as he would be a bold man who asserted that he had never made a mistake in the diagnosis of Pleuro-pneumonia; but I do say it was a most remarkable proceeding for three professional men to get into a witness-box, and state that they could swear *positively*—from a section of a rib to which were attached pleural adhesions, and which had been in spirit for some months—that the animal from whose carcase it had been removed had been the subject of Zymotic Pleuro-pneumonia; two of the witnesses failing to see any tubercle in the adhesions, the third saying that he distinctly saw tubercle therein.

In conclusion, I have only to express my regret that the lungs, although placed in whiskey at the time, were so far neglected as to become decomposed; thus doing away with the possibility of those who are interested having the opportunity of examining them for their own satisfaction; and also to say positively that no sign of disease *of any kind* existed in one set of lungs, and that the other evidenced only *tubercle of many months' standing.*

I am, dear sir, yours truly,

THOMAS WALLEY,

Principal of the Edinburgh Veterinary College.

Edinburgh, *March 20th*, 1878.

To the Editor of the VETERINARY JOURNAL.

SIR,—It is with reluctance that I lift my pen to reply to Professor Williams's remarks, made at the recent meeting of the Lancashire Medical

Association, anent the jury trial in which he was defender, and I was one of the "two professors" cited to give evidence in connection therewith. Indeed, I would not do so, but that Professor Williams impugns my testimony. His statement is that he was sued "for the value of *two* cows he ordered to be slaughtered *when* they were suffering from Pleuro-pneumonia," —that the case was decided against him on "a point of law"; that three veterinary surgeons and himself found Pleuro-pneumonia, while two professors found none. The fair inference is that he and the three veterinarians were right, and but for the "point of law" he would have been successful in his cause; and that the "two professors" were wrong. Leaving out of view the slight inconsistency of the statement, that "he ordered *two* cows to be slaughtered *when* they were suffering from Pleuro-pneumonia," with the additional statement—five lines below—that "he proved at least that *one* of the animals was suffering from Pleuro-pneumonia," I beg to lay a plain narrative of the FACTS before my professional brethren, and let them judge for themselves whether my opinion was justified or not. As to whether or not the case was decided on "a point of law," or on its conduct or merits, I do not propose to deal.

In the month of May last, I received a telegram in Glasgow, requesting my immediate attendance at the slaughterhouse, Edinburgh; and to this I replied, fixing the time. At the hour appointed I appeared, and was requested by a Mr. Dunn and Professor Walley to examine the carcases, etc., of two cows that were pointed out to me by them, and to state the disease or diseases under which the animals had laboured prior to being slaughtered. I accordingly proceeded to do so, and after a careful inspection of the bodies, and a minute examination of the lungs—including the testing of these organs as to their density, resulting in the floating on water of both lungs as a *whole*, and *in sections* of various sizes, as well as the recording of the whole appearances and results at the moment in my notebook—I communicated to the parties present that the one animal had been affected with Chronic Tuberculosis, and that I had failed in detecting any traces of diseased action, either in the viscera or carcase of the other. Professor Walley then said, "Please look again, and see if you cannot discover traces of Zymotic Pleuro-pneumonia." I did so, but was again forced to declare Tuberculosis, and Tuberculosis only. *Up to this point*, I knew nothing of the particulars of the dispute, nor the names of the parties disputing; nor had I the most remote idea that Professor Williams was mixed up in it.

Such is the history of the matter: and now as regards the disease. Tuberculosis, I regret to state, is a common malady, not only in the dairy cows located within the byres of this city, but also in lean and old milch cows, which are daily brought into the Clyde from Dublin, Belfast, and other Irish ports, to be used as "minced meat." And as it falls within the range of my official duties to deal more or less with the carcases of all such animals, and those that may be affected with Zymotic Pleuro-pneumonia, not only as to their fitness or unfitness for human food, but also as to the amount of compensation to be paid for animals *slaughtered by order* of the local authority of Glasgow, I have a wide field for the acquirement of theoretical and practical knowledge bearing upon these two diseases, either singly or conjoined. In the *living subject*, it requires great care and considerable experience to distinguish some cases of Tuberculosis from Zymotic Pleuro-pneumonia; and even then, as I stated in my evidence before the whole court, the two diseases may be confounded and mistaken the one for the other. But I would also have been bound to admit, had I been asked, that in the *dead subject*—allowance being given for a proper examination—it is not so; and I incline to the opinion, that there are few

veterinarians of experience who would consider themselves *flattered* by being told that they can distinguish the lesions of Tuberculosis from those of Zymotic Pleuro-pneumonia or Tuberculosis conjoined with Zymotic Pleuro-pneumonia.

Apologizing for the trouble I give in asking you to find a place for this communication in your next issue.

I remain, your obedient servant,

JAMES MCCALL,

Principal and Professor of the Glasgow Veterinary College.

March 21st, 1878.

THE EDINBURGH (DICK'S) VETERINARY COLLEGE.

To the Editor of the VETERINARY JOURNAL.

SIR,—The pages of your last issue contain evidence of an activity in investigation on the part of certain individuals, with a view to the advancement of our profession, which must be gratifying to all concerned. Closely associated with this exhibition of activity in the field of inquiry, there seems to be a sudden revival of interest in the affairs of the Dick College, in quarters where there was least reason to expect it.

It will come as a surprise to most of your readers to learn that Mr. Thomas Greaves, of Manchester, has been snatching moments from a life of arduous professional duties to carry on a series of intricate investigations, and that he has been rewarded by a discovery, the importance of which can scarcely be estimated. I say it will come as a surprise, for although the name is not absolutely unknown to us, still Mr. Greaves has up to the present time, as a scientific investigator, led a life of comparative obscurity, and this is the first occasion on which he has laid the profession under a heavy debt of obligation.

Mr. Greaves gave publicity to his discovery in an article entitled "The Penal Clause : how to obtain it," which appeared in your last issue. But as, in my opinion, the announcement did not receive the prominence which it deserved, and might therefore escape notice, I take this opportunity of directing the attention of your readers to it. The announcement extends to one sentence, and is as follows: "We find that Professor Dick's College was never exalted or endowed by a charter of any description"! This will come as such an overwhelming surprise that it would be vain, until the mind has calmly grasped its full significance, to attempt to discuss the effects which it is likely to have on the institution in question and the profession at large. But there are one or two questions which immediately present themselves to the mind, as naturally demanding a solution in connection with the foregoing; and these I would, with all due humility, suggest should next receive the attention of Mr. Greaves.

1st. Who said that Professor Dick's College was ever "exalted or endowed by a charter of any description"?

2nd. Which of the veterinary schools of Great Britain was ever "exalted or endowed by a charter of any description"? And

3rd. What connection has the statement made by Mr. Greaves with "The Penal Clause"?

I hope Mr. Greaves will pardon my having trespassed on ground which, by right of primary exploration, he may think exclusively his own; but, stimulated to follow his example, I have given the subject some attention, and with the result which I proceed to state as concisely as possible: We find that Professor Dick's College, as a teaching school, is as much "exalted and endowed" as any other veterinary school in Great Britain.

I observe, from the same number of the *Veterinary Journal*, that Mr.

Cartwright was present at a meeting of the Midland Counties Veterinary Medical Association, and there delivered an address which "he could not conclude without expressing his regret that the endowment left by the late Professor Dick for the advancement of veterinary science was rapidly dwindling away." Obviously, this is a token of the intense interest and solicitude with which Mr. Cartwright regards Professor Dick's College. But as this state of extreme mental dejection into which Mr. Cartwright has been cast seems scarcely warranted by circumstances, it becomes a duty to offer him such explanation as may afford him some relief. I have much pleasure, therefore, in informing Mr. Cartwright that the "dwindling away," to which he refers, was not connected with the internal working of the Dick College, and that it was necessitated by circumstances which he will be pleased to learn are not likely to recur.

Mr. Cartwright concluded his address with advice, couched in somewhat ambiguous language, to "his friends in the north." As those connected with Professor Dick's College do not include themselves in the class to which the advice is tendered, its interpretation becomes to them of little consequence. It seems, however, to have reference to the prospective closure of one of the veterinary schools "in the north,"—and as Mr. Cartwright is presumably better acquainted with the affairs of his "friends" than with those of the Dick College, I am not disposed to deny that he may have good grounds for his apprehension.

But, in conclusion, permit me to state, for the satisfaction of Mr. Cartwright and all who, *like him*, take a deep interest in the welfare of the Dick College, that its condition at present is one of vigorous and increasing prosperity.

Your obedient servant,

Dick Veterinary College, Edinburgh, JOHN MCFADYEAN.
15*th March*, 1878.

"THE PENAL CLAUSE:" HOW TO OBTAIN IT.

To the Editor of the VETERINARY JOURNAL.

SIR,—In this month's issue, under the above heading, is a letter from Mr. Greaves of Manchester. May I ask you to kindly allow me space for a few words on some of the matters to which it refers. Mr. Greaves indulges occasionally in very earnest nice-sounding language, so perhaps you will also —for the sake of variety—kindly allow me a little licence in that respect.

Mr. Greaves tells us that "an overwhelming majority of the members of our profession are most anxious that we should possess the power to indict any one who uses or assumes the name or title of 'Veterinary Surgeon,' unless such person has obtained the diploma of the Royal College of Veterinary Surgeons." In other words, setting quacks and such-like aside altogether, "an overwhelming majority" of members of the Royal College of Veterinary Surgeons are "most anxious" to deprive the men who prefer to hold only the Highland Society's certificate of their title of Veterinary Surgeon, and to punish them by fine (and possibly imprisonment!) if they dare to use or assume it. The members of the Royal College know, or ought to know, that many of these men are their old friends and fellow-students, and associates at College—men who, while there, and in after life, have shown that they are well worthy of being called veterinary surgeons—men who *never* use the title M.R.C.V.S., and who really and conscientiously do not approve of the Royal College of Veterinary Surgeons as the right and proper corporate body for Scotland; and they know also that—even in the event of their wishing to join—for these men to recommence the study of botany, chemistry, anatomy, and other scientific subjects to pass a regular examination, is very hard indeed and almost impossible. Yet, knowing these things, many of our friends of the Royal College, according to Mr. Greaves, are most anxious

that we should no longer be permitted to call ourselves veterinary surgeons, —"horse-doctors," "farriers," "cow-leeches," or any "other grand titles" are good enough for us. Is this the way the Royal College cultivates the "kindly, pleasant, and agreeable manners" Mr. Greaves speaks of at the end of his letter? Is this the way it is "gentlemanly and honourable" in all it does?

Mr. Greaves has long been known as a zealous advocate of the Royal College of Veterinary Surgeons, and, as far as I am able to judge, he has good reasons for being so. Cannot he believe, on the other hand, that many Scotch veterinary surgeons, really and conscientiously, and for good reasons too, do not approve of it, and have no wish to join it, *except for the mere sake of obtaining a legal diploma?* Living within a reasonable distance of London, with large practice and proportionate income, a member of Council, and President too, if I remember rightly,—a member also of the deputation to convince the Highland Society and Scotchmen generally of the error of their ways,—Mr. Greaves has every reason to be satisfied with, and proud of, the Royal College of Veterinary Surgeons. But, possibly, had Mr. Greaves' lot been cast in Edinburgh or Aberdeen, with an income of £300 or £500 a-year, his satisfaction with and his confidence in this corporate body might have been less. He would then have found, as many others have done, that a trip to London once, twice, or thrice a year, to attend Council meetings, however agreeable, was quite out of the question; that to rise out of Scotch mist and darkness to £1000 or £2000 a-year was no easy matter; and finding that he could not go to the Royal College, he might have cried till he was tired for the Royal College to come to him. "Impossible!" "Its Charter did not allow it!" For about half a century has this Royal College, by meeting always in London, practically placed it out of the power of Scotch veterinary surgeons to take their proper place at its meetings, and their proper share in its management; and now that its Charter does allow it to visit Scotland, the paltry reparation it proposes to make is to come once in three or four years. And because we will not join this Royal College, "the overwhelming majority are most anxious" to settle our case for us as soon as possible. With all its protestations to the contrary, I am convinced that the R.C.V.S. has not done justice to Scotland and its veterinary surgeons, and probably never will; and that it is more of an English than a Scotch corporate body. To use Mr. Greaves' nice words—"Approach the walls, break down, destroy the outworks, clear away every obstacle, storm, carry the citadel, and dismount every gun," and you will find, as far as I am able to judge, that the key of the castle of this Royal College of Veterinary Surgeons, and the skeleton in its cupboard, is the fact that "London is the place!" "London men and Englishmen so numerous and agreeable,—and with a few choice spirits from Scotland, the rest are never missed." And I for one believe, that the Royal College of Veterinary Surgeons is *afraid* to hold its council meetings in Edinburgh or any Scotch city for ten consecutive years, without going to London. Long ere that time there would probably be a new body called the Royal College of Veterinary Surgeons of England; and most heartily have many of us wished that for the last twenty years there had been a Royal College of Veterinary Surgeons for Scotland worthy of the name.

And, strange as it may appear to Mr. Greaves, I have heard, not so very long ago, some members of Council—some men to whom the Fellowship degree was offered—and others make and assent to very peculiar statements. "A Charter for Scotland was *the* thing—*the* great thing to be desired," but it would never be got; therefore join the R.C.V.S. and make the best of it. Very good advice, possibly; but had Scotchmen taken that way of thinking in the days of a certain old English king, who wished his osseous system carried at the head of his army, where should we have been now? But if it is to be taken, nothing will be easier than "to convince a Scotchman against

his will," and we shall soon see the living organisms of the serried legions of the R.C.V.S. marching through the capital of the poor Highland Society men. Poor fellows! Port inspectorships are theirs no longer; and soon many of us may have to see the inspection of our districts placed in other hands; and if "the overwhelming majority" get their anxiety allayed, where shall we be?

When these days come, sir, I and many unfortunate brethren—to take up Mr. Greaves' style again—will have to attempt to enter the "body corporate," and I shall have to try "the front door" this time. I once tried a door which it seems was never open, and was found most unworthy. "Buy a text-book, O ye my professional brethren, and study botany: read its principles—so long and ably shown forth in the *Veterinarian*,"—and if in six weeks you cannot pass a better examination than some who now add M.R.C.V.S. to their names, I will be ashamed of you. Turn to chemistry, and find that some of your friends the elements, which in student days were single, are now double; that many salts have new names and new ways of coming into the world, and that the answers which would do once won't do now. Anatomy used to be a labour—but of love generally. Half a dozen full-sized subjects in the dissecting room at once used to be common enough; but anatomy now, to your ease and comfort be it spoken, is occasionally very easily learned by books and lettered specimens. Physiology and morbid anatomy—of these you did not probably get enough when you were young; you will be all the better for more of them now you are older. And though you have treated many a horse and doctored many a cow, grumble no more at an examination. Though your faces will be a study, you will learn much that is new and worthy of being learned; and you will come out of the ordeal with thinner heads and better brains, and your sudorific organs in full operation." And the gain to our physical, mental, and professional economy will be great, and we shall have—boon of boons—a legal diploma in our pocket. Pity but what we could put "the overwhelming majority" through the same process: and wouldn't I like to be an Examiner!

Possibly it is needless to write more on the subject. To drop the above sort of language, many of us are proud, and justly proud, of our Highland Society's certificate, and prefer it, though it is not a legal diploma, to that of the R.C.V.S. We hold to the Highland Society—not because it is an agricultural society—we know, of course, that is the great objection to it; but this Society has been a true friend to Scotch veterinary surgeons and Scotch schools. No need to rush to London to pack meetings to carry good measures with them! They are always willing to adopt them. This Agricultural Society, in my opinion, has all along been doing the work the veterinary surgeons in Scotland should have done; and no one would have been better pleased to have seen us with a charter and diploma of our own long ago. Had we worked as well towards that end as the Highland Society have done, I believe we should have had it years since. And even now—supposing the general wish was for one corporate body, and not two—were the Royal College of Veterinary Surgeons to meet regularly in Scotland, and show plainly that there is to be no more partiality between the two countries—it might have no better friend than the Highland and Agricultural Society of Scotland.

These, sir, are a few ideas which we hold on this subject; and I trust the expression of them will not give offence to Mr. Greaves or any one (for none is meant). I confess, of course, that I see no reasonable prospect of our obtaining a charter for Scotland. I know, also, that many Scotch veterinary surgeons are warm advocates of the R.C.V.S., and under these circumstances it is a pity to have or to sow division; but so long as that body treats Scotland and the holders of the Highland Society's certificate as it has done, I for one have no wish now to possess its diploma. And I would simply say again to the President and Council of the Royal College, "Come out of London a

little oftener, and give Scotch veterinary surgeons a fair chance to take their proper place among you, and we will try to join you if you wish it." (That, in my opinion, is the way to do away with the Highland Society's examinations.) But if you won't, then I hope "the overwhelming majority" will not gain their end; and if they do, it will be time enough then for us to consider whether we will undergo the ordeal of the examination of the R.C.V.S., or dispense with a title altogether. For my own part I would probably prefer the latter.

Apologising for the length of this letter,

I am, sir, yours very truly,

Slateford, *March 14th*, 1878. C. CUNNINGHAM.

TO CONTRIBUTORS.

WE cannot undertake to publish, as ORIGINAL COMMUNICATIONS, papers which are intended to appear simultaneously in other journals. The reason for this course is obvious, and in adopting it we are only conforming to the rule observed in all high-class publications.

ANSWERS TO CORRESPONDENTS.

DR. OFFENBERG AND HYDROPHOBIA.—The reported recovery of a hydrophobic patient, through the administration of curara by Dr. Polli, does not appear to have any foundation in fact. Dr. Polli's name has become connected with the case of recovery reported by Dr. Offenberg, and the mistake has made it appear that there were really *two* cases of Hydrophobia treated and cured by curara in Europe, whereas it is now evident that there was only Dr. Offenberg's.

SAPIENS.—The Royal Veterinary College does not now offer to confer the degree of Fellow or Licentiate on its students. When the Governors of that school were made acquainted with the strong feeling that existed in the profession, with regard to a mere teaching establishment conferring degrees without any test of fitness being demanded, and when the ridiculousness of the proposal was made manifest to them, they, in a subsequent supplemental charter, wisely declined to countenance such a project.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from A. E. Queripel, Royal Horse Artillery, Umballa; A. Gunn, Ballaon, N.B.; R. Moreton, Burton-on-Trent; J. Gerrard, Market Deeping; W. Dacre, Altrincham; J. McFadyean, Edinburgh; G. Evans, Sealkote, India; D. Hutcheon, Liverpool; C. Cunningham, Slateford; J. Webb, Bishop's Stortford; — Spratt, London.

BOOKS: A few Rules of Medical Etiquette; *J. M. Wehenkel*, L'Etat Sanitaire des Animaux Domestiques, etc., dans la Royaume de Belgique; Bulletin de la Socéité Centrale de Médecine Vétérinaire; *J. W. Hill*, The Management and Diseases of the Dog.

JOURNALS: *American Veterinary Review; Wochenschrift für Thierheilkund und Viehzucht; Revue Vétérinaire; Mark Lane Express; Journal of the National Agricultural Society of Victoria; Agricultural Gazette; Farmer; Medical Press and Circular; American Live Stock Journal; North British Agriculturist; Der Thierarzt; Recueil de Médecine Vétérinaire; Lancet; London Medical Record; La Veterinaria Espanola; Nature; Nineteenth Century; Broad Arrow; Field.*

NEWSPAPERS: *Melbourne Leader; Sydney Town and Country Journal; Montreal Gazette; Toronto Leader; West Briton and Cornwall Advertiser; Marylebone Mercury; Times; Scotsman; Japan Gazette; Japan Daily Herald; West Briton.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal" Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MAY, 1878.

THE HARVEST-BUG (*LEPTUS AUTUMNALIS*), AS A CANINE PARASITE.

BY GEORGE FLEMING, F.R.C.V.S., 2ND LIFE GUARDS.

THE Harvest-bug, or Grass-tick, though well known as a human parasite in many parts of the country, and at a certain period of the year, has never, to my knowledge, been mentioned in English veterinary literature as attacking any of the domestic animals. In the *Veterinary Journal* for June, 1876 (p. 429), there appeared the translation of a case reported by Professor Friedberger, of the Munich Veterinary School (*Archiv für Wissenschaftliche und Practische Thierheilkunde*), in which the Tick had been discovered by him on the nose of a Newfoundland dog, which, it was surmised, may have received the parasite through being located in a park where vegetation—such as dry grass (the month was August) and gooseberry bushes—was abundant. Friedberger, who gives a good description of the epizoön obtained from the dog, thought this a unique case in veterinary literature. But the editor of the *Veterinary Journal* pointed out that, in France, MM. Mégnin and Mathieu, of Sèvres, had seen a dog on which the Harvest-bug had located itself; and Mégnin conjectured that the disease of sheep known in that country as *Noir-museau* ("Black-muzzle"), may be due to its attacks.

However this may be, I cannot find that any authority has

observed it upon the dog or other animal in this land, and I therefore think that allusion to an instance which came under my own personal observation may not be without some interest and value—if only to prove the fact that the insect may become a troublesome canine parasite in England.

Early in the month of August last, I was staying with a friend near Sittingbourne, Kent, and had with me a very small, fine-skinned, black-and-tan toy terrier. In my rambles through the fields, among bushes, grass and stubble, I received much attention and was subject to great annoyance from the minute and all but invisible pest, which appeared—so far as the surface of one's body is concerned—to be ubiquitous. In these rambles the little dog accompanied me; and in the course of a few days I remarked that it was not so lively as usual, that its coat, particularly on the top of the head, upper part of the neck, and along the back, was harsh-looking and erect, and that the creature often rolled on the ground, rubbed itself against the legs of chairs and other objects, scratched itself, and evinced a desire to be stroked. On passing the hand over the skin, in order to gratify the dog, the integument was found to be rough and nodulated, as if covered by a papular eruption, and in places it was moist and corrugated. A close examination led to the recognition of a number of small vesicles here and there, little hard nodular swellings like pimples, and a few minute raw spots. I did not for a moment suspect the presence of the Harvest-bug, and thought the dog was suffering from a kind of Eczema—though the localisation of the supposed eruption on the thickest part of the skin rather excited my surprise. A more attentive scrutiny, however, enabled me to discover clusters of tiny atoms—very much less than the head of the very smallest pin, of a brick-red or Cayenne pepper tint. Recourse to a pocket lens left no doubt whatever that swarms of Harvest-bugs had fixed themselves on those regions of the poor little dog's body least accessible to its paws or teeth. They clustered on each little elevation of the skin or papule just like a swarm of bees; and after a time, when the eye became accustomed to look for them, sundry individuals could be seen moving about on the skin among the hairs—their bright colour contrasting markedly with the black derm of the

dog. The amount of irritation they caused was evidently great, and the skin—though much itching was present—was sore on manipulation. To judge from the number of papules, vesicular elevations, and ridges on which the ticks lay in clusters, there must have been many hundreds present on the comparatively small surface occupied by them. It was astonishing how tenaciously they clung to the skin, and it required pretty firm scraping with the blade of a pocket-knife, before a number could be removed for examination and preservation. On a sheet of white or very dark paper, the scarlet bugs could be seen moving about very actively—indeed, wonderfully so, when we considered their extremely minute size.

The tenacity with which they adhered to the skin was evidenced by the presence of a shred of epidermis on the proboscis of several of the parasites which had been forcibly removed.

The little dog, being much distressed by the bug, was dressed with the remedy most convenient at the moment—paraffin, which appeared to free it from its tormentors, though not until some days had elapsed. The itching in the nodules did not subside, however, for a longer period, and the skin looked unhealthy for some weeks.

Recourse to treatment, from humane motives, of course prevented my ascertaining how long the parasite is capable of domiciling itself on the dog,—but I think the case was sufficient to prove that with high-bred, fine-skinned, almost hairless animals, the Harvest-bug might prove a real torment and cause of disease, for some time at least.

From my own painful experience of the insect, I am inclined to believe that it is sarcoptic in its habits—*i.e.*, it burrows beneath the epidermis; for I have frequently observed it under the epidermis—particularly on the arm, where the skin is thin and white—at a little distance from the point where it had penetrated, and where the irritation and swelling were most intense. I have also produced great irritation, and the consequent tumefaction, by rubbing the skin where the bug had lodged itself—the rubbing having excited it to throw out the acrid fluid which produces so much itching and local inflammation.

The Harvest-bug is well known in Kent, and especially to the hop-pickers and farm labourers during the harvest months; and, like many other insects of this description, it does not infest every person exposed to its attacks—some people enjoying a most enviable immunity. I am informed that it chiefly, if not altogether, haunts chalky soils; there being some contiguous localities where the soil is gravel, and the creature is unknown.

Küchenmeister (*Die in und an dem Körper des lebenden Menschen vorkommendem Parasiten*, p. 428), very fairly describes the *Leptus autumnalis*, and notices that during the harvest-time in dry grass, newly-cut grain crops, among ripe gooseberry bushes, and such-like vegetation, this mite abounds; from these, it gets on the human skin, where it behaves like an *Ixode*, except that it bores into the integument with its head, and gives rise to little boils, papules, impetigo-like pustules, or shallow but not unhealthy ulcers. In these burrows, according to this authority, the yellowish-red parasites—each no larger than the point of a needle—appear in a series like a string of pearls, or are congregated in clusters, as on the little dog just mentioned.

The life of the parasite, Küchenmeister states, is very brief. It is most frequent in its attacks early in July and the beginning of August; after this period it probably retires into mossy places, and undergoes its further development or evolution. During the harvest-time, it is often so violent in its attacks on man as to give rise to annoying itching, inflammation, swelling, and even fever; often they are in such crowds on the skin of the reaper, and particularly towards the hair-roots, that the red colour of the insect gives rise to a peculiar appearance known as "rouget." It is also asserted that the creature seldom lives long as a parasite on the human skin—rarely tarrying more than a few days. In unfavourable external circumstances, however, and when the annoyance persists in a certain locality where the mites are very numerous—as in a gooseberry garden—then the disease they produce will recur repeatedly for weeks and months, until the end of harvest.

I have not yet had leisure to examine the specimens procured from my dog. Friedberger's specimens did not vary much

in size, and their average measurement gave the following result:—

Length . . . 0·43 millimetre.
Breadth . . 0·26 „

FIG. 2.
Harvest-bug : under surface.

FIG. 3.
Harvest-bug : upper surface.

The head was very short and wide, and furnished with particularly strongly developed antennæ, the terminal extremity of these having a hook or claw in the middle of a feathery-looking apophysis. There were three pairs of limbs, all of which were about the same in length and proportions; they were divided into five or six segments, and were studded with bristling hairs. All the legs had two lyre-shaped hooks attached to their distal extremity, but no sucker disc. Instead of the latter, each foot was bulbous and knotty, and had a flattened hook-like termination, provided with a close-set and fine, but hard third hook, which might have been mistaken for the end of a bristle. The oval body was distinctly fluted or ridged—the under side transversely, the upper surface longitudinally. The abdomen appeared to be pretty closely studded with bristles. The red-coloured matter (shown in the woodcuts as dark masses in the abdomen), and to which the parasite owes its tint, was distributed throughout the body in large and small vesicles. Neither the circulatory nor generative apparatus were observed.

Gudden, of Zurich (Virchow's *Archiv*, 1871, p. 255), gives a similar description to that of Friedberger, though he figures a suction proboscis. Küchenmeister and Von Siebold give the parasite eight legs during its juvenile condition.

The Harvest-bug belongs to the *Acaridæ*—a division of the tracheary *Arachnida*, and in which the true ticks, or *Ixodidæ*, are classed. The latter are found in thick woods, attached to low plants, and readily fasten themselves upon dogs, cows, horses, and other quadrupeds which approach them. They bury their suckers so deep in the skin of these animals, that it is impossible to detach them without tearing away the integument on which they have fixed themselves. The *Ixodidæ* are comparatively large insects; and the *Ixodes ricinus* (or "dog tick"), and the *Ixodes reticulatus* (or "ox tick"), are the most familiar. Some of the members of this class are extremely troublesome, even destructive, to animals. Anderssen (*Lake Ngami*, p. 21), referring to one found in South Africa, writes: "The bush-tick does not confine its attacks to men only, for it attaches itself with even greater pertinacity to the inferior animals. Many a poor dog have I seen killed by its relentless persecutions; and even the sturdy ox has been known to succumb under the poisonous influence of these insects."

The *Ixodes Americanus* (Pohl), of Brazil, is very numerous, and Burton says that horses and cattle suffer greatly from it and even die of exhaustion.

The Harvest-bug, exceedingly minute though it be, has all the offensive qualities of the *Ixodidæ*, and can prove both troublesome and hurtful, as the foregoing case amply proves.

Whether it attacks other animals than fine-skinned dogs, has yet to be ascertained. Probably members of the profession practising in Kent or in other districts in which this insect exists may be able to afford information on this point.

AZOTURIA.

BY T. HOPKIN, F.R.C.V.S., MANCHESTER.

THE report of the Montreal Association in the *Veterinary Journal* for January states that an interesting discussion on what they term "Hæmoglobinurea" was adjourned, there being some difference of opinion as to the pathology of this disease.

There is no doubt that our Azoturia and their Hæmoglobinurea* are one and the same malady.

To any one who is not conversant with the history, pathology, and treatment of this disease, I would recommend the article on it in Williams' "Principles and Practice of Veterinary Medicine."

There is good reason for concluding that some of the profession at home are not particularly familiar with it—perhaps owing to its only having been recently recognised. Any cases occurring formerly would, no doubt, be put down to some bowel affection. During my early pupilage, I remember that in a case of supposed inflammation of the bowels, a *post-mortem* examination did not reveal any trace of inflammatory action. At the present time we have a gelding that has repeatedly suffered from Azoturia, and a few practical details in connection with this case may perhaps be deemed sufficiently interesting for insertion in the *Veterinary Journal.*

A black cob gelding, fifteen hands one inch high, bought about three years ago at Tattersall's as one of a pair, was sold soon afterwards on account of his temper in harness—plunging, and only starting at his own pleasure. After I had him a short time, with plenty of work, and care in handling, he improved considerably in this respect, and is now an exceptionally good horse. I have given these details to show the highly nervous temperament of the animal.

On Monday, the 20th of November, 1877, after resting from Saturday, the 18th, he was brought out in the morning for a distance of about three miles to meet me. The groom complained of his pulling, saying he was afraid he would have bolted with him coming up, and he had got over the distance in a little over ten minutes.

* Hæmoglobinurea is the German designation for the malady in question.—ED. *V. J.*

After sitting behind him for a short time, he ceased pulling, and began to go a little lame on the near hind-leg; this lameness was succeeded by tremours and profuse perspiration. Suspecting what was the matter, I ordered the groom to lead the horse home, and directly on his arrival I passed the catheter. The urine at first had not the usual characteristics of Azoturia—being of the colour of muddy beer; but after a moment's pause in the flow, there came about ℥viii of the real Azoturia urine.

This, I think, shows that the exciting cause is the exercise. The urine first drawn was what had been secreted before he was brought out; the second flow must have come from the ureters and kidneys, as it would have mixed with the lighter coloured urine if it had been in the bladder at the same time.

Experimenting with him on several occasions, after the Sunday's rest, I find the more severe the exercise the worse the attack is, and that the slighter symptoms only manifest themselves if he is put in a box and nothing but cold bran mash given to him. He can then on the Tuesday be put to work without an attack.

In some correspondence with Professor Williams on the subject, he says that change in the urine in Azoturia does not take place in the kidney, but is due to the excretion of superabundant albuminoid materials from the blood—not albumen, but its degraded products. When an animal has had rest and a liberal diet of peas, beans, or any food of a similar nature, the system is overcharged with certain products which, when not excreted rapidly enough, cause this peculiar kind of blood-poisoning; and the more highly developed the nervous temperament is, the more predisposed is the horse to the action of this poison.

If the excretory organs are relieved of their paralysis and congestion, the patient recovers, because they speedily throw off the deleterious matter.

There is no difficulty in treating this malady if seen in time. Draw off the urine with the catheter, give both diet and medicine to cause free action of the bowels, and—as recommended and suggested by Mr. C. Elam of Liverpool—apply a large hot bran poultice to the loins. The relief afforded by the latter is wonder-

ful—horses manifesting the greatest agony being relieved almost immediately after its application and the emptying of the bladder. Another matter in connexion with this horse is noteworthy. Judging from his outline and muscular development, one would say that he was a hunter; but whenever I have jumped him (having an idea at first that he would occasionally carry me a day to hounds), he always managed to blunder with his hind-legs; though he always went with his nose well at his fences, yet he could not get these limbs under him, and generally contrived to drop them either into, or on the wrong side of, the fence.

Occasionally, when riding him after a day's rest, when he was tired, I have detected a weakness or falling gait behind, just for a step or two; this has been much more marked after an attack of Azoturia. Is this the condition horse-copers and similar people call "kidney-dropping"?

When feeding him on white peas, this horse had an attack almost weekly; since discontinuing their use, he has been exempt from the disease.

EPISTAXIS.

BY THE SAME.

A BROWN cart-horse commenced bleeding from the right or off nostril whilst at work during a very hot day in July.

Treatment.—Cold water injected up the nostril, and ice to temples. Sesquichloride of iron was given internally; dilute sulphuric acid was also administered by the nostril, which was plugged for hours by means of a muzzle and cotton wool and flour, until at last the horse became so violent that we were obliged to remove these.

The last medical remedy tried was acetate of lead, ʒss. in acid solution. Whether this was beneficial, or a change of weather which occurred, I cannot say; but I had him standing out in a thunder-shower, and the hæmorrhage gradually ceased during the night. From first to last the bleeding continued for a week; the blood sometimes only dropping, at other times flowing in a stream.

Should another case of this kind present itself, I will try tincture of ergot.

ENTERICA: TYPHOID OR ENTERIC FEVER IN THE HORSE.

BY JAS. WEBB, M.R.C.V.S., BISHOP'S STORTFORD

(Late V.S. in the Royal Horse Artillery).

As a doubt seems to prevail amongst veterinary surgeons as to whether the above disease exists in the equine species in this country, I thought the following remarks would suffice to convince them that it is occasionally met with.

During my service in Her Majesty's army, I had the opportunity of witnessing two well-marked *post-mortem* examinations of horses which died of this disease at the Royal Horse Infirmary, Woolwich; but as the cases belonged to two of my brother veterinary officers, I regret to say that I only cursorily noticed the symptoms during life. I recollect that, in one case, the veterinary surgeons who saw the horse during life could not agree as to whether he was suffering from a thoracic or abdominal affection, the symptoms being so uncommon. However, upon making a *post-mortem* examination, all the viscera appeared healthy, until at last the intestines were laid open for their whole length and rinsed with water, when it was plainly visible what was the matter:—there were a number of yellow-looking ulcers of various sizes, some as large as a shilling-piece. In the other case, the animal died in a very debilitated condition, and the same kind of ulcers were seen on the tongue, in the fauces, and in the stomach and intestines; but they were better developed than in the preceding case, as some were even as large as a florin, and nearly penetrating the walls of the latter viscera. The position of many of these ulcers might be known by a congested patch on the external surface of the intestines.

Another horse was diagnosed as suffering from the same malady; and the veterinary surgeon being called to perform duties away from the garrison, I was directed to take medical charge of the horses to which this case belonged. The treatment I adopted was as follows: The patient being already in a well-ventilated loose-box, I requested that he should be frequently coaxed with small quantities of scalded oats, carrots, bran,

hay tea, a few blades of grass, freshly drawn cold water, etc. I prescribed also—

℞ Acid Nitro-hydrochlor. Dil. . . . ℥ij.
Cinchon. Flav. Cort. Pulv. . . . ℥ss.
Pot. Chlor. . . . . ℥ss.
Cerevis ad . . . . . Oj. (*Misce*),

to be given thrice daily, and the patient to be sponged, or lightly wisped over with weak vinegar and water twice a day. In a few days an amelioration of the symptoms occurred, and under this treatment the horse recovered.

LEUCORRHŒA IN A MARE.

BY THE SAME.

A FEW months ago, while attending a horse suffering from "stoppage in the bowels," the owner wished me to look at an aged black cart-mare, which had been suffering from a yellow-looking discharge from her vagina for upwards of two years, and this continued to become worse, notwithstanding he had put her to the stallion both years, and without her having a foal or lessening the discharge. The horsekeeper told me that sometimes upwards of half a pailful of this "matter" escaped from her in one day, and she was "losing flesh fast." Having previously treated milder cases of this disease, I readily undertook the treatment of this case. I requested that the mare should be well nourished, and that she might do light work. I prescribed—

℞ Acid. Arsenios. Pulv.
Cantharid. . . . . *ā*, *ā*, grs. v.
Nuc. Vomic. . . . . ℥i.
Cupri Sulph. . . . . ℥ij.
Pro j pulv. Mitte. xij. (*Misce.*)

One to be mixed in a bran mash every day, and given to the mare. The mash was always eaten. Topically: Zinc. Sulph. ℥ij dissolved in Aq. Tep. Oj., to be injected into the vagina every afternoon by means of a small enema funnel. After a few days the discharge began to decrease, and within a month the mare was quite cured, and is now in ordinary farm working condition.

THE "LOODIANA DISEASE," OR "MALIGNANT FEVER" OF INDIA.

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SINCE I arrived in India for the first time, in December last, I have had two cases of the disease known as the "Loodiana," or "Malignant Fever," among the horses of the Royal Horse Artillery; and by the kindness of Veterinary Surgeon Walker, I have had an opportunity of seeing something of two cases that occurred among the horses of the 9th Lancers, stationed here. These are not many cases, but I have found in them much that throws new light upon the nature of the disease; and though it is but the dawn, I think I should not delay making it known to the profession, that others may see in what direction we must pursue our investigations, and that the day of revealing this mystery may be hastened.

I will describe the cases in the order in which they came before me.

CASE I.

No. 83, grey gelding, country bred, aged ten years, belonging to H.C. Battery, R.H.A.

January 12th, 1878.—This horse was reported off his feed at noon stables.

At 12.30 I found him looking very dull; conjunctivæ injected, more especially the near eye; mouth hot and dry; pulse 72, and weak; respirations normal. Sent him to the infirmary box for observation.

3 p.m.—Dung soft, with strings of membranous mucus; pulse 76; respirations 12, and regular; temperature of rectum $105\frac{4}{5}^{\circ}$. Examined the blood by the microscope: found a large proportion of granules, and the red discs either did not adhere to each other, or when they did they soon lost their individual outlines, and apparently dissolving into each other, formed an undefined jelly-like mass. Many of the free discs had a crenate form, but I have seen as large a proportion in healthy animals. I discovered no bacteria. From the high temperature, I had no doubt it

was a case of the so-called "Malignant Fever," and the horse was picketed away from other animals.

I had never seen a case of this disease before, but from reading accounts of it, I was led to think it to be the same as Anthrax. Nor do I know anything of Anthrax, except what I have read. I therefore took great interest in this case, and I mention this to show the attitude of my mind towards it, in looking for the symptoms recorded by authors as characteristic of Anthrax.

I knew of no medicine that might be given with any confidence for good in this disease, and I thought the best plan was to study it uncomplicated. Active agents affect both the pulse and the temperature, and with medicine we cannot tell what the natural course of the disease is. I therefore determined to give no medicine, but to watch the progress of the case closely. The patient had, unfortunately, to be picketed in about the most unhealthy place near here, for want of a better, regarding the safety of other horses, presuming the disease to be communicable. It is a low, damp ground, covered with a thick fog at night. He was well clothed, had straw to lie on, and had as much cold water to drink as he would take; but no food was to be offered until the fever subsided. I have often seen patients urged to "take nourishment" in high fever, but I think it tends to do more harm than good.

5 p.m.—Extremities getting cool.

6 p.m.—Pulse 78; temperature of rectum $107\frac{3}{5}^{\circ}$.

9.30 p.m.—Pulse 88, weaker; temperature of rectum 107°; the extremities are all cold.

13th, 9 a.m.—Pulse 96, and so weak and compressible that it is difficult to count the beats; respirations 16; temperature of rectum $106\frac{4}{5}^{\circ}$; fæces soft, and covered with membranous mucus; extremities cold.

Noon.—Blood examined again, with $\frac{1}{5}$th and $\frac{1}{12}$th objectives. There are fewer granules than yesterday, and a larger number of white corpuscles, but not more of the latter than I have seen in health; the red discs have the same tendency to congeal, or else to remain isolated; none form *rouleaux;* none of them have the characteristic bi-concave form of health; they are more or less irregular, colloid masses; I found none of a crenate form

to-day; the granular character of the white corpuscles was not so well marked as in health; temperature of rectum 107$\frac{3}{5}$°; respirations 22; pulse cannot be counted at the jaw; heart's beats 88, and intermittent; there was not that marked contrast between the pulse at the jaw and at the heart which authors mention as characteristic of Anthrax; extremities warm on the sunny side, cool on the other.

3.30 p.m.—Pulse 84, distinct at the jaw; temperature of rectum 105$\frac{2}{5}$°; respirations 22; the upper part of the throat has commenced to swell, and there is a slight discharge of mucus from the nose; extremities all warm. Examined the blood, and found a wonderful increase in the number of the white corpuscles since noon,—more of them in the field of the microscope than I could count; they were in groups; red discs as before. It is very remarkable that it is more difficult to obtain a drop of blood each time I try. I have to make the incisions of the skin larger and deeper each time; the last time I had to cut quite through the skin, and then blood came very slowly,—it simply oozed out, and very soon dried up,—not a drop flowed beyond the lips of the wound, except what I got on the slide, and that only by everting the lip and pressing the glass on it, though the wound was half an inch long, and through the skin from end to end. It may console the antivivisectionists to know that the patient did not show the slightest sign of feeling the lancet.

5.30 p.m.—Temperature 105$\frac{4}{5}$°; pulse 82, less distinct at the jaw; respirations 32; swelling of the throat increasing, and becoming more tender to the touch; he drank about one bucketful of water during the day; the syce (groom) says he passed no urine during the day, but I am told the evidence is not reliable; extremities temperate.

9.30 p.m.—Temperature of rectum 104°; pulse 82 at the heart, not distinct at the jaw. I did not find in this case the "metallic tinkling" mentioned by authors as characteristic of Anthrax. Respirations very irregular: at one time they are 30 or 32, and in ten minutes they may be down to 25. The swelling at the throat continues to increase; a little before 6 p.m. he passed fæces of a healthy character, and also about a quart of urine soon after—"very high-coloured and oily-looking."

January 14th, 9 a.m.—The swelling of the throat has increased so much that the artery cannot be felt at the jaw, and it extends the whole way down the neck. Pulse at the heart 60; the sounds less distinct than last night: I suspect hydrothorax. Respirations 14, and more regular and laboured than last night. There is a rusty discharge from the nose; extremities cold; temperature of rectum $103\frac{4}{5}°$. Drank a bucketful of cold water during the night.

1 p.m.—Temperature of rectum $103\frac{4}{5}°$. Pulse at the heart 62; respirations 28, and laboured; the swelling of the throat increasing.

3 p.m.—Has just laid down, and made an effort to turn on his back; temperature of rectum $104\frac{3}{5}°$.

5.30 p.m.—Temperature $104\frac{3}{5}°$; pulse 68 at the heart; respirations 22 to 25, and irregular, with increased difficulty at the larynx. I don't think tracheotomy would have any other effect than perhaps prolonging a life of suffering a little. The animal is becoming restless,—shifting his position often, and occasionally lying down.

8.25 p.m.—Died. Half an hour after death I found the temperature of the rectum to be $104\frac{3}{5}°$: exactly what it was 3 hours and $5\frac{1}{2}$ hours before death, *and* 4·5° *higher than it was* $7\frac{1}{2}$ *hours and* $11\frac{1}{2}$ *hours before death.* I thought that was very remarkable, for authors state that one of the characteristic symptoms of Anthrax is the high temperature in the early stage of the disease, which falls even below the normal standard when the case is going to terminate fatally. I then began to doubt whether this disease is Anthrax. Other duties prevented me from waiting to find when the body would begin to cool. All the limbs were stiff with *rigor mortis* twenty minutes after death.

January 15th.—The Principal Veterinary Surgeon in India arrived at the station yesterday, on his tour of inspection; and I was exceedingly glad to have his presence at the *post-mortem* examination, especially as this was the first case I had seen of the disease.

Autopsy, $12\frac{1}{2}$ *hours after death.* The thermometer, after remaining in the rectum ten minutes, stood at 95°—just as it

was when inserted. Abdomen very slightly tympanitic; body well nourished; effusion in all the serous cavities; all the serous membranes more or less yellow, and stained red in patches; ecchymosed spots remarkably distinct in the left heart and great arteries; mucous membrane of the small intestines highly congested; spleen and liver congested; the yellow "jelly-like" effusion so often described in this disease along the whole course of the trachea—increasing upwards. I examined this with the microscope, and found it to be simply the connective tissue distended with clear serum, in which were a great number of amœboid leucocytes. The blood everywhere black, thick, and indisposed to flow; no bacteria found in it. Œdema of the glottis, which doubtless was the immediate cause of death.

Case II.

On the 23rd January, Veterinary Surgeon Walker, in charge of the 9th Lancers, kindly invited me to see a case of "Loodiana" that was taken ill the day before. At 11 a.m. I put the thermometer in the rectum of the horse, and after keeping it in five minutes, it stood under 101°. That surprised me, but I had noticed the sphincter to be very relaxed, and occasionally it relaxed a little to allow gas to escape; yet I did not think it would affect the thermometer much, if any. However, I put it in again; and with much difficulty I held the sphincter, or at least the surrounding skin, close to it for five minutes. The temperature was then found to be $103\frac{1}{5}°$. That shows how careful we should always be in making observations with exact instruments. I may observe here, that I always prefer the rectum to the mouth in the horse, for the reason that it can be closed better; it is often impossible to keep the mouth closed long enough, and the teeth may injure the instrument. Moreover, the air passing through the nose to the lungs, reduces the temperature of the air in the closed mouth of man, and probably of the horse also. I have made all these observations myself, with the greatest care, because I have no assistant whom I can trust to be exact enough. My thermometer is one of Arnold's, tested at Kew. At each observation I keep it in the rectum five minutes, and record the observation immediately.

I then took a drop of blood from the skin of the patient, and in less than five minutes after I had it in the focus of the microscope, when I saw what I thought were bacteria swarming in it. I made a rather hasty conclusion, because I was thinking of Anthrax, and as this disease is commonly identified with it, I was really looking for bacteria. On closer inspection, I thought they were more likely to be blood-crystals: they resembled very closely the small prismatic crystals of *Hæmato-globulin*. I have since come to the conclusion that they are worms in a very early stage of development, and I will describe them presently. The corpuscles of the blood in this horse appeared like those of my first case, but there were fewer of the white corpuscles, and the *post-mortem* appearances did not differ in any material respect. *Two hours after death* I found the *temperature of the rectum to be* 102°.

Case III.

On the 24th January, Mr. Walker invited me to the autopsy of another horse that died of the "Malignant Fever" on the previous night. I had not seen this case alive, but I found the worms in the blood in plenty, though not so abundant as in the last case. The white corpuscles, however, were more numerous, and the red discs had not so much tendency to dissolve into each other. The general *post-mortem* appearances were of the same character as the other cases. Œdema of the glottis was the immediate cause of death in each of them.

Now, if the presence of these worms is essential to the development of this disease, it may be asked why I did not discover them in my first case. I must therefore state that, some years ago, I rather overworked my eyes with the microscope, and in order to force myself to rest them, I sold my lenses. When I was about to proceed to India, I got Mr. Swift to make me one of Brown's small clinic microscopes with the $\frac{1}{5}$th and $\frac{1}{12}$th (immersion) lenses, specially with a view to studying blood, etc., in disease. They are uncommonly good ones. But it requires some practice to handle the little instrument, and I had never used it before; besides, my eyes were out of training, and I had to get them gradually into condition for work. Though this "pocket microscope" is invaluable for clinical work, it is not adapted for such

laboratory work as I find necessary to carry on here in the investigation of a disease like the one under consideration. I have therefore sent to Mr. Swift (University Street, London) for some of his best lenses, and his improved Hartnack's stand; so that I hope by-and-by to be able to give a better account of these things.

Case IV.

February 12th, 1878.—No. 2, H.C., R.H.A., bay gelding, "Waler," aged eight years.

About 1.45 a.m. this morning the farrier-sergeant reported to me that this horse was ill. I was with the animal by 2.15 a.m., and found him apparently suffering only from active congestion of the lungs—so far as the general symptoms indicated. Respirations 25, and very laboured; extremities cold; neck cool; body under the blankets warm and perspiring freely; pulse not distinct at the jaw. I had no stethoscope with me, and the perspiration was so disagreeable that I did not auscultate by the direct application of the ear to the chest. The expression of the eyes was very peculiar, indicating affection of the brain, probably due to venous congestion. The pupil of the near eye was dilated, and did not contract before the lamp; the fundus had a very greenish tinge; conjunctivæ of both eyes very highly congested, as was also the mucous lining of the nose, which had a bluish tinge. He was rather restless, and staggered when he walked. Temperature of the rectum $101\frac{3}{5}^{\circ}$—which I thought was low enough to exclude Malignant Fever.

The history of the case was, that he had been sent to the infirmary yesterday, at 1 p.m., for "Shivers." The remaining portion of his feed and grass were taken with him. When he arrived at the infirmary he had ceased shivering, and he went on eating his feed and hay until he finished them. He looked so well that the farrier-sergeant thought it was not necessary to report him to me, but he was kept at the infirmary because the weather was very wet and cold to stand out. Several other horses had also been sent to the spare stalls, simply for protection from the weather. This horse had been under cover up

to the 9th inst., when the horses were all turned out of the stable in order to repair the floor. At evening feed he left a little of the corn behind, but went on eating the grass until he finished it. The farrier-sergeant thought he was quite well at 7 p.m. At 1 a.m. this morning, the "jemadar" noticed the horse lie down and roll as if in pain. The farrier-sergeant was sent for, who found him standing, and "breathing hard."

The history, therefore, as well as the general symptoms, indicated a chill, followed by very acute congestion of the lungs. I have heard veterinary surgeons mention such occurrences, but I had never met with any case of congestion running its course so rapidly as this. I determined, therefore, to examine the blood by the microscope. Everything was ready, and in less than forty-five seconds after the blood was taken from the circulation I had it in the focus of the $\frac{1}{5}$th objective, when I at once saw the worm-like bodies, swarming with the blood-corpuscles. That was at 2.25 a.m. It was diagnostic of the "Malignant Fever." The patient was too weak to walk from the infirmary, so the other horses were turned out at once.

The horse became more restless; at 3.30 a.m. he staggered into a corner and fell. At 4.10 a.m. he died, apparently from suffocation. There had been no sign of laryngeal constriction, no swelling of the throat, and no discharge from the nose, or any of the symptoms usually regarded as characteristic of the "Malignant Fever."

As writers upon Anthrax, and upon this disease, say they are alike in having a high temperature during the early stage of the Fever, which falls often even below the normal point as death approaches; and finding the temperature of this case to be $101\frac{3}{5}^{\circ}$ two hours before death, I suspected it had been higher and was on the descending scale. The ushering in of the Fever by rigors had been well marked, and was recorded in this case thirteen hours before I found the temperature as above stated. In order to test this question, I placed the thermometer in the rectum *five minutes after death*, and found the temperature then to be $102\frac{1}{5}^{\circ}$, showing it had ascended $\frac{3}{5}^{\circ}$ during the two hours preceding. I waited another hour, to find when it would begin to descend; and at 5.10 a.m. I found it to be $101\frac{4}{5}^{\circ}$. The

temperature was diminishing, but it was still higher one hour after death than it was two hours before death.

I must now describe the appearance of the blood in detail, as I found it directly after it was removed from the circulation before the horse died. The worm-like bodies were white, semi-transparent, and the outline of a red corpuscle could be seen through them; their length varied from less than the diameter of an ordinary white corpuscle to twice its diameter; their width was about a quarter the diameter of an ordinary red corpuscle (of the horse). They were nearly all straight; some were curved, somewhat like an S. They had no independent motion; I could not make out one end to be thicker than the other, but one extremity seemed to be heavier, for they commonly floated with one end deeper in the serum than the other. They were round, for I could see the upper extreme end. I could observe no distinct organs within them. . . The white corpuscles were in great numbers, and of different sizes; many of them assumed amœboid forms. Red corpuscles formed no *rouleaux,* but they soon clustered together to form spacious jelliform masses, in which all the outlines of the individual red cells disappeared. Between these masses were left channels for the serum, in which floated the white corpuscles and the worms, with some free red discs. When the slide was inclined to one side, or the glass cover was pressed, the current carried these objects rapidly; and when the worms entered with their long diameter across a narrow channel, they readily doubled up, like the letter U, and extended again when they reached a broader part. One of them was pushed on by a white corpuscle, which it partially encircled. Many of the free red discs had a strong tendency to stick to each other's edges in a chainlike manner. In passing through very narrow channels, these pulled each other on as an oval-linked chain, and they would resume their shape afterwards, but still adhering to each other. This reminded me of what Dr. Beale states in his work "The Microscope in Medicine,"—that he noticed his own blood behaving after that manner, when he had taken a dose of salts, and he attributed it to the purgation withdrawing water from the blood; for soon after he had drank water freely, his red discs behaved themselves in a normal manner. I there-

fore introduced a very little water to the drop of blood under observation, and instantly the whole scene was changed like a phantasmagoria. All the red discs separated from each other; even the jelliform masses broke up, and every disc of which they were composed became independent, and of the normal form. That was rather instructive, as so much has been said and written about the thickness and viscidity of the blood in this disease. It thickens because so much serum is drained from it into all the serous cavities and connective tissue. The worms must absorb much of the water required by the corpuscles, and the mere presence of so many myriads of worms must thicken the fluid. What is the cause of the exudation? It is not an early symptom. I suppose the worms obstruct the circulation in the small capillaries, and exudation takes place to relieve the tension of the general congestion. The symptoms also vary, depending upon which organs are chiefly congested—the digestive, the respiratory, or the nervous.

Autopsy, five hours after death.—Body well nourished. My own observation confirms what I have been told by others, that horses in poor condition are not more subject to this disease than those in good working condition. The four cases I have seen have been horses neither too fat nor too lean. Probably the disease makes no selection; there are a greater number, in almost every battery, of horses too fat than too thin; and the majority are usually in hard-working condition during the drill season—such as this is. I may observe here, also, that I have not found the flesh becoming putrid any sooner than diseased meat usually does in the same temperature. I have kept parts of the liver, spleen, kidneys, lungs, and muscle in the pharmacy for five days in temperate weather, and they did not become putrid any sooner than morbid specimens usually do. At each of these four autopsies, I have called attention to the fact that the carcases were remarkably free from smell, and the bowels from tympany; my sense of smell is very keen, too. I make this remark because I have noticed other writers making very contrary observations. Perhaps the medicines they gave caused the tissues to be more prone to decomposition, or they probably made their observations under different atmospherical conditions.

The peritoneum in this case was healthy; there was no effusion in any of the serous cavities; there was sub-peritoneal "jelly-like" exudation at the commencement of the larger intestines, and also at the kidneys. The mucous membrane of the large and small intestines was congested throughout—more in some patches than in others. A tumour of submucous jelly-like exudation, three inches in diameter, was found in the colon. The spleen was enlarged and nodular, and congested with thick black blood, which was indisposed to flow. The liver and kidneys were congested; the lungs were more congested than any other organ. The pleura and pericardium were healthy. The bronchial tubes had much frothy, rusty mucus in them. The right side of the heart was empty and healthy; the left side contained about two ounces of blood, and the endocardium was much ecchymosed. The areolar tissue along the whole course of the trachea was very red, but there was no exudation in it. The mucous membrane of the trachea and larynx was congested, but there was no submucous exudation there. The membranes of the brain—especially the *pia mater*—were beautifully injected. Such were the general appearances.

Post-mortem Microscopic Examination.—The "jelly-like" exudation was simply the infiltration of clear serum in the hyperæmic connective (cellular) tissue; the serum contained many amœboid leucocytes. In the blood from the heart, the worms and the red discs behaved as they did in the living blood; but many of the white corpuscles were breaking up. I saw their nuclei parting from each other, and floating away independently.

The worms have a wonderful power of resisting reagents. 1st. Strong acetic acid was mixed with a drop of blood on the slide, and the worms were hardly, if at all, affected by it; I *fancied* it made a few of them show faint signs of being beaded inside, but I mention this with reserve. 2nd. A few drops of the blood were mixed with three times its bulk of strong nitric acid in a watchglass, and allowed to stand fifteen minutes; then a drop of the mixture was mixed with a little weak glycerine on the slide and examined. The usual change had taken place in the corpuscles, but I was not sure that the worms were in the least degree altered. 3rd. A few drops of the blood were again placed

in a clean watchglass, and a little more than the same bulk of caustic potash crystal dissolved in it: they were allowed to stand a quarter of an hour, then a drop of that was mixed with weak glycerine and examined. I thought some of the worms were corroded, but I was not sure that the dark spots I saw on them were not adhering granules. 4th. To a few drops of the blood was added three times their bulk of liq. potassæ (*Brit. Pharm.*), mixed, and allowed to stand half an hour; then strong acetic acid was added—more than enough to neutralise the alkali—and it was allowed to stand one hour more, when the precipitate was washed well in cold water, and after that it was mixed with glycerine and examined. I found a few worms which appeared to have resisted that treatment, but most of them had decidedly a very corroded appearance, and some I thought had a very transparent tunic enveloping a shrunken interior, which appeared as if composed of segments; these segments were not regular in size—the divisions, or segments, were five or six in number. I mention the apparent tunic cautiously; I thought I could make it out in several, but in one only did it appear distinct, and I soon lost that one.

The spleen, liver, and kidneys, were examined, and the usual condition of their cellular structure in hyperæmia and pyrexia was observed. Wherever blood-corpuscles were found, they were accompanied by the worms; but these bodies were not observed in scrapings from the uriniferous tubes at the pelvis of the kidney, nor in the bile ducts where blood had not passed.

Scrapings from the bronchial mucous membrane.—I found none without some blood-corpuscles, and with them were always the worms, as already described. The following observations, however, are of the greatest importance in the investigation of this disease.

1. I found two bodies, soda-water-bottle-shaped, with a long neck, as in Fig. 5, having five oval segments within the transparent capsule. These two were in different parts of the lungs.

Fig. 5.

2. One like Fig. 6, the cells on each side of which were very pearly, and the body semi-transparent.

Fig. 6.

FIG. 7.

3. One oval, as represented in Fig. 7, of a yellow colour, semi-transparent, and filled with ova-like bodies.

These were found in different bronchi of about half an inch diameter. They were all very small, and could be best seen with the $\frac{1}{5}$th objective. The one with two rows of cells was the longest; it extended about $\frac{1}{4}$th the diameter of the field. I don't know whether one or other of them have any relation to the disease. They seem to me very like what I have seen in ditch-water. How they got so far into the lungs I cannot tell; I opened the bronchi in the pharmacy, immediately before taking the scrapings, and was careful not to slit up one tube before I was ready to examine the scrapings from it. It was not a dusty day. I suppose the horse snuffed the bodies in from the dried grass, which may have grown near some ditch—there has been great scarcity of grass lately—or they may have been carried by the air which the animal breathed. The practical deduction is this: that as these were carried into the lungs, so others may have been, which perhaps generated the worms found in the blood, if one of these forms was not capable of doing so.

4. But the most remarkable objects in the lungs were worm-like bodies, found innumerable in every scraping taken. I thought at first the blood-worms were merely fragments of these, seeing them together; but on closer observation, I found they differed in several respects. I said the blood-worms are round: the lung-worms appear to me to be quite flat, or tapelike. The diameter of most of the latter is nearly the same as that of the former, though they are much longer. Some of them, when uncoiled, extended across half the field of the $\frac{1}{5}$th objective; but these very long ones were also wider than the blood-worms; they were nearly as broad as a red corpuscle. The outlines of the corpuscles could be seen through them. There were very few of them not coiled somehow. Those not coiled were perfectly limp, bending every way with the current. None showed independent motion. There was a great variety of coils, but the most common forms were these two, which may be taken as typical; and it will be observed that they are both identical, except that the large one

has been flattened by the pressure of the surrounding mucus, etc. I have shown their ends free in these figures, but it was very common, and indeed most common in the small ones, for their ends to be in perfect apposition. It was only by noticing a little thickening that I could tell where the ends joined; and that was not always well marked. Nearly all of them had a small coil within the large, as I have shown. I did not see one with a small coil turned outwards; the larger seemed to be for the protection of the smaller. Many of them had a mass of spore-like bodies within the small coil, and in a few I thought I could see a very transparent capsule covering these sporules; but I mention it with reserve. There were also many of these sporelike bodies free in the surrounding fluid, as well as many coils without the group of them within. The longest open worms, and the largest coils I found, were in the larger bronchi, and the smallest coils were most numerous in the smallest bronchi. I did not find one worm uncoiled in the small tubes except the blood-worms. There was also a large proportion of free sporules in the small tubes. A small piece of the parenchymatous tissue of the lungs was pressed on the glass slide, and the exudation from it examined. I found in that a large number of small coils not larger than a red blood-corpuscle, and some even smaller, with a profusion of free spore-like bodies. Strong acetic acid, as well as caustic potash, brought to view some coils that I could not see before, and they made the others more distinct; but neither the acetic acid nor the caustic potash had any effect upon the sporules. After the addition of caustic potash, I noticed one small coil, half the size of a white corpuscle, uncoil to four times the size of the corpuscle, and it then assumed the shape of Fig. 10. At first the ends of the worm were so close together that I could not notice where they joined.

Fig. 8.

Fig. 9.

Fig. 10.

Now, I do not know what these things are,—whether they belong to the animal or vegetable kingdom. I call them worms, because they are worm-like. I know very little about parasites, but I have described what I have seen in these cases as accu-

rately as I can, in the hope that some one who reads this paper will by it be able to tell me in what direction I am to look for the source of the evil.

I am sorry that I did not examine scrapings from the bronchi in the first three cases. Possibly these lung-worms are not so constant in the disease as the blood-worms appear to be. I have shown how they differ in appearance, but I suspect they are both intimately related, if one is not the development of the other.

[Dr. Evans' investigations into the pathology of Loodiana Disease are of the greatest interest and importance, and we shall continue to look forward to their further results with eager expectation. Should his discovery turn out to be a real one, then we shall have the key to the etiology of a very serious and hitherto mysterious disease, and this may lead to our ascertaining that other obscure disorders of animals are due to a similar cause. The discovery of certain nematode worms in the blood of man and animals has already proved of great value, and the researches of Lewis, Bancroft, and Manson (whose excellent paper on Chinese Hæmatozoa recently appeared in this journal), have thrown a new light upon the origin of several diseased conditions, which will probably enable us to devise successful measures for their prevention or cure. Thus, it is extremely probable that the *Filaria sanguinis hominis,* the intermediary host of which would appear to be the mosquito, gives rise in man to Chyluria, certain forms of Hydrocele, Hæmaturia, lymph scrotum or other form of Elephantiasis; and it is surmised that a considerable proportion of morbid states—cachexiæ, nervous diseases, dysenteric and other affections ascribed to malaria, may be due to the same or some allied hæmatozoa. India offers a splendid field for research in comparative pathology; and the microscope in the hands of studious and observant veterinarians in that country will add immensely to our knowledge of animal diseases. Dr. Evans' further researches in this direction will appear in the next issue of the *Veterinary Journal,* with the description of some specimens he has sent for more careful examination and identification.—ED. *V. J.*]

ACUTE YELLOW ATROPHY OF THE LIVER.

BY T. BRIGGS, F.R.C.V.S., THE WYLDE, BURY, LANCASHIRE.

A DRAUGHT brood-mare, the property of Messr s. John Whittaker and Co., of Radcliffe, was the subject of the above-named disease. Last year the mare aborted about the sixth month, the cause being attributed to over-exertion and a large draught of cold water. The constitutional disturbance was slight, and she soon went to work again, none the worse for the mishap. On the 2nd of last May she was again "served," and worked regularly up to December. She then became lame, apparently from Rheumatism, on the off hind-leg; the lameness, which was scarcely visible in walking, but excessive in other paces, continuing in about the same degree for three weeks, a blister was applied to the hip, and the ailment disappeared. After a month or so of light work, the other hind-leg became similarly affected. It was decided not to work her again until she had foaled; she was rested, and, without any treatment, the lameness subsided.

The mare, during this time, was in good condition, and with the exception of an occasional attack of dulness and loss of appetite, which lasted three or four days at a time, she enjoyed good health. On the morning of the 26th of March she was observed to be very restive, appearing most comfortable when lying on the left side; and she would lie for an hour at a time—now and again turning her head round and sighing. When standing, she hung her head and had a very dejected appearance. She was continually shifting her feet. No symptoms of premature foaling were observable. The surface of the body was dry and hot; the extremities cold; mouth dry; respiration a little quickened, but not laboured; pulse 82, and wiry; visible mucous membranes of a peculiar bright orange tint; no alteration over the region of the liver could be detected by percussion or measurement; bowels constipated; bladder, on introduction of catheter, found empty; appetite completely gone; no thirst. A dose of oil, followed by podophyllin and sedatives alternately, was administered, and perfect quietude ordered. The next morning the mare was in much the same state; the bowels had

responded to the action of the medicine, and the fæces were of a darkish colour. Some urine had been passed, but the attendant was unable to procure any.

At 8 p.m. the symptoms were markedly aggravated; the respiration quick and sighing; pulse running down; the skin on the front of chest and on right flank was very wet with perspiration, but in other parts quite dry; the ligaments of the pelvis relaxed; *os uteri* closed; no enlargement of mammary gland; great restiveness and delirium ensued, and the mare dropped and died, in convulsions, at midnight, after an acute illness of about forty-eight hours.

On *post-mortem* examination, the liver was found little more than half the normal size; its surface was even, and of a greyish-yellow colour; the consistence soft. On section, the same greyish-yellow colour and softened consistency were noted; in the centre of the organ the structure was particularly soft. The lobular arrangement was almost imperceptible. The other abdominal viscera were healthy. The uterus contained a well-developed fœtus. The lungs were slightly congested, and the heart somewhat flabby. In other respects nothing unusual was seen.

The symptoms, during the acute attack, clearly indicated liver disease, with, possibly, some uterine complication. The autopsy, however, revealed no complication. The atrophy of the liver was certainly very striking and remarkable, but seemed, at the time, insufficient to account for such rapid dissolution. The case being, at least to me, unusual and interesting, I searched, but without success, for a recorded case in veterinary literature.

Dr. Murchison, in his published "Lectures on the Diseases of the Liver" in the human subject, gives an elaborate and beautiful account of this disease, entering minutely into the pathological anatomy and morbid changes which take place in the urine and other secretions. After reading this excellent treatise, I greatly regretted that the mare's liver had been destroyed without being submitted to a microscopic examination. No opportunity of obtaining any urine occurred. Perhaps a summary—which necessarily must be very imperfect and brief—of what Dr. Murchison says, may be interesting, and possibly instructive.

That eminent authority speaks of Acute Yellow Atrophy as a "rare but very remarkable disease, in which the liver becomes rapidly atrophied, with the development of jaundice and cerebral symptoms, and where, after death, what remains of the organ is found to be extremely soft and yellow, with no appearance of lobules, and with the secreting cells in a great measure, or wholly, broken up into granular matter and oil globules." He goes on to say that, out of 15,000 cases admitted during six years into the London Fever Hospital, only one example of the disease was noted. "The premonitory symptoms are variable, and sometimes absent: loss of appetite and irregular bowels, with slight pyrexia;" "rheumatic pains, and an uneasy sensation in the region of the heart, together with a feeling of uneasiness which the patient is unable to define, are the most common. These symptoms may last three or four days, or as many weeks; but, withal, there is not, as a rule, thought to be much amiss, while in not a few cases the patient has no feeling of indisposition until the supervention of symptoms of a more decided character." Jaundice, rarely intense, is invariably present, and is usually the first symptom which attracts notice. "In the course of a week or ten days, one-third, or even more than one-half, of the liver may disappear."

The disease mostly attacks females during gestation; a gravid uterus is a predisposing cause, and "pregnant females almost invariably abort or miscarry before dying."

SINGULAR CASE OF HEART-DISEASE IN A HUNTER. EXTRAORDINARY ANTE-MORTEM CLOT.

BY MESSRS. CARTWRIGHT & HILL, F.R.C.V.S., WOLVERHAMPTON.

YESTERDAY, the 29th March, our junior partner, Mr. R. H. Cartwright, made a *post-mortem* examination of the horse from which the heart sent per train to-day for your inspection was taken. You will perceive that there is both hypertrophy and valvular disease; but we more particularly wish to call your attention to the presence of an unusually large *ante-mortem* clot

attached to the valve and cords, filling fully two-thirds of the ventricle and a considerable portion of the auricle—the latter being nearly blocked up with the detached dense fibrous portion severed in the examination.

The animal in question was six years old, and belonged to the Albrighton Hunt stud. During the latter portion of last season he had an excessively hard day, and exhibited considerable distress: but this he apparently got over. He commenced the present season well, and continued his work without failing until within six weeks of his death, when he declined in health and spirits, but still continued work. On the last day of his life (the 28th) he was ridden with the hounds. No sport was shown until towards five o'clock in the afternoon, when there was a run of about two hours, and finishing a long distance from home. A few minutes after entering the stable he fell down and expired.

The wonder is that the animal had been enabled for so long a time to do *fast work* with such a cardiac condition. The bulk of the *ante-mortem* clot must certainly have been present for a considerable period; and the obstruction to the circulation, one would have thought, must have been attended with fatal results at a far earlier date.

We think the case interesting, pathologically, and the specimen of morbid anatomy a valuable one.

[The clot referred to by Mr. Hill was situated in the right ventricle, attached to the auriculo-ventricular valves, and extending upwards into the auricle, as well as downwards to the apex of the ventricle. It consisted of dense fibrinous layers, and measured four inches in breadth, while it varied in thickness from $\frac{1}{16}$th inch to $1\frac{1}{4}$ inch. The heart was much enlarged, the muscular tissue pale and soft, and the ventricles much dilated. The valves on the left side were healthy; and it was only at the point of attachment of the clot that any indication of disease could be seen on the right side.—W. DUGUID.]

A SUPPOSED CASE OF TYPHOID FEVER IN THE HORSE.

BY J. ROALFE COX, F.R.C.V.S., LONDON.

THE horse to which the morbid parts forwarded belonged, was one of three at the same establishment, and which presented Typhoid symptoms. But the other two had catarrhal and pulmonary complications, rather than those of an intestinal character; though in all there was the same marked depression, quick and feeble pulse, and *high temperature*. The horse under consideration, about twelve days before death, was first observed to be ailing. There was loss of action of the bowels, evidence of suffering from dull pain, listlessness, and inappetence. At the commencement, the case was looked upon as one of constipation, and a *moderate* amount of relief followed the administration of laxative medicine. It was after this, however, that the peculiarity of the case became marked, and I had the horse conveyed to my infirmary for observation.

At this time the bowels were again inactive; there was tympany; the pulse numbered 90, and was feeble; the temperature was 106°. The animal was listless, occasionally lying down, with evidence of dull pain. Whiskey was now given to the amount of ℥vj., together with spts. chloroform and liq. ammoniæ, and gruel at night.

Next day the temperature was 104°, pulse 60, and liquid dejections frequently escaped involuntarily; these had a peculiar sickly odour, which persistently remained in the loose-box. On the whole the horse appeared to be better. He had oatmeal gruel during the day, and the same quantity of whiskey morning and evening. But the cessation of action of the bowels continued; at a later period the temperature was 106°, pulse 110 per minute; and altogether there were slight changes for better and worse day after day. As there was much thirst, he was allowed water *ad libitum*, with occasionally a little hyposulphate of soda added thereto. Milk was also prescribed. On Sunday night a great change was observed: there was no action of the bowels; the tympany was very great, and collapse rapidly ensued and terminated in death.

Post-mortem Examination.—On opening the abdominal cavity, a notable quantity of fluid was observed, of the same character as that contained in the bowels: it was lying among the convolutions of the intestines—a proof that there must have been perforation of the bowel previous to death. I did not trace the perforation, however. The intestines were full of a yellow liquid, which had a most offensive smell; there was not a particle of solid matter in them. The peritoneal coat of the stomach exhibited numerous rose-coloured spots on its surface, while the internal mucous membrane showed the deeper-tinted patches. The colon is sent for inspection. The greater portion of the intestines—apart from this portion—were also thickened by submucous infiltration, and were somewhat uniform in colour.

To my mind, the inaction of the bowels in this case amounted to paralysis, and I think might be due to the direct depressing influence of the Typhoid affection.

If this case was one of Typhoid Fever, it is interesting as controverting the assertion that such a disorder does not affect the horse: though to this view I am not disposed to subscribe.

[The specimens sent by Mr. Cox were portions of the stomach and double colon. The mucous membrane of the stomach was congested and thickened by a considerable amount of submucous exudation; the other coats were healthy. Several feet of the colon were in a state of gangrene, the mucous membrane breaking down; and in some places the muscular coat had all but disappeared, leaving only the peritoneal coat intact. At the point where this condition of the intestine commenced, there was a well-defined line of separation, the mucous membrane being perfectly healthy up to this point. The cause of this necrotic condition was arrest of the circulation, by the formation of firm clots in the branches of the mesenteric artery supplying this portion of the intestine. A clot of three inches in length, and extending into the smaller vessels, was found in one of the larger branches of the mesenteric artery.—W. DUGUID.]

ANTHRAX IN OUR DOMESTIC ANIMALS.

BY A. E. MACGILLIVRAY, V.S., BANFF, N.B.

DURING the last two months, I have met with so many cases of anthracoid affections, that I feel anxious to again call attention to the subject; and I do this the more readily, when I see not only other members of the profession from all corners of the world doing so, but also scientific men of every grade prosecuting minute investigations into the nature and dissemination of this deadly assailant of animal life.

Since I sent the communication on this subject which appeared in the March *Journal*, I have met with the disease in horses, cattle, sheep, and poultry; and my intention is to offer a few remarks as to the symptoms and *post-mortem* appearances observed in each class of animals.

First, as to horses. Within the period stated, I have seen three two-year-old colts succumb to the disease. Two of them died within six hours after being attacked, and the third lingered on for about eighteen hours. The two which died so quickly never showed any signs of violent distress—such as colicky pains; one of them lost the faculty of standing at the very commencement of the attack, and in this case the thermometer showed 96° F. internal temperature about three hours before death; the other generally stood in one position, but occasionally lay down, and in this case the thermometer marked 106·5° F. about two hours before death. In both these cases there was very tumultuous action of the heart. The third colt, which lived eighteen hours, was extremely distressed and violent through the whole attack, and got immense doses of laudanum, solid opium, and chlorodyne, to keep him quiet. In this case, almost from the beginning of the attack, there was seen the characteristic symptom of a protruded and infiltrated rectum. The thermometer registered 105·5° F. within an hour of death.

In the first case the *post-mortem* appearances were analogous to those generally met with in cases of internal (abdominal) "Charbon" in cattle; so I need not particularise them.

In the second case, I made a most minute *post-mortem* examination, the results of which completely confirmed my previous

diagnosis of Anthrax. In this case, about three hours before death, most profuse diarrhœa set in, accompanied by very abominable effluvia. In the subcutaneous cellular tissue there was a good deal of yellowish effusion in large patches, and several black spots of extravasated blood, all over the body. On opening the abdomen, I found the intestines loaded to distension with a yellowish (apparently effused) liquid, which had an abominable smell; the mesentery was also loaded with yellowish and partly coagulated effusion; while here and there, all through the intestines, appeared the characteristic black spots (from one to three inches in diameter) of extravasated blood. The thoracic contents were in a like condition—the heart being much altered, and its tissue disorganised; there was very little blood in any of the vessels throughout the body, and what was found was very black and non-coagulated.

Second, as to cattle. With the exception of two cows in calf, rising four years old, the cattle attacked by Anthrax have shown the usual "Quarter-ill" symptoms, and were all young stock, which it would be useless to detail here.

The two cows in calf, however, presented exactly the same *post-mortem* appearances as seen in the case of the second colt above detailed. The yellow, and partly coagulated, infiltrations, and black extravasated bloody spots, were both extensively found and well defined. These cows, like the colt, died without any struggling, or even restlessness. In one of them the thermometer ranged high; the other I neglected to ascertain. Both were off their feed, and dull and listless; the mucous membranes were yellowish, and the urine high-coloured. Both died within twenty-four hours.

Third, as to sheep. The cases of Anthrax in sheep coming under my notice have all occurred in pregnant ewes. In every case the chief symptoms have been great dulness, reeling gait, loss of power of standing, complete loss of appetite, costiveness of bowels, emission of badly-smelling gas from both ends of digestive canal, congestion of lungs, coldness of extremities, and death within twenty-four hours. *Post-mortem* appearances generally resembling that of the first colt above referred to, with the addition of very dark lung tissue, completely infiltrated in

every part with black *fluid* blood; considerable emphysema was also present in the lungs, resulting probably from the partial disintegration of their parenchyma.

Fourth, as to poultry. On the 6th of March last, I received a note from a gentleman in this locality, stating that he had "within a few days lost twelve hens and two turkeys," and he suspected "something was wrong"; in fact, he suspected *poison*. Along with this note, he sent the *crop* and *gizzard* of one of the dead hens; but I could detect nothing wrong with either of these. Subsequently there died other seven hens, one cock, and one turkey—making in all nineteen hens, one cock, and three turkeys!

I cannot speak positively as to the symptoms, as I did not see any of the ailing poultry during their illness; but I understand that diarrhœa was pretty constant, and the evacuations were more or less of a bloody description, and had an abominable smell. I, however, made *post-mortem* examinations of the bodies of two of the hens and the cock; and I found the following abnormal appearances: in the two hens the disease was chiefly confined to the ovary, ovules, and oviduct; some of the ovules were black and "tarry-looking" to their very core; there was also considerable bloody infiltration about the kidneys, and some discoloration, and very bad smell about parts of the large intestines. In the cock a prominent symptom, while alive, was a fœtid and bloody diarrhœa; and after death I found the disease most distinctly marked about the heart, muscular part of gizzard, rectum, and their immediately contiguous parts.

During the summer of 1877, I was consulted about a most remarkable outbreak of this disease, which occurred among the poultry on a farmyard in this district; and from first to last more than fifty hens died. Several *post-mortems* were made; and in all, along with other and variable appearances, the ovary, ovules, and oviduct, were more or less affected. In this instance the poultry were in prime condition; and, in several cases, on noticing the first symptoms of illness, the owner killed them for the table; but on opening them, and finding the ovules quite black and bad-smelling, he threw the whole on the dunghill!

Was it owing to the extreme vascularity of the ovary, ovules, and oviducts, that they were so invariably affected?

Editorial.

HORSE-FLESH AS HUMAN FOOD.

Some years ago, M. Decroix, Principal Veterinary Surgeon in the French Army, moved by economical, philanthropical, and humane impulses, essayed to introduce the flesh of horses, mules, and asses, as food for people. The attempt was commenced in Paris, and certainly with but little expectation of immediate or even prospective success. Prejudice was strong against the use of this flesh; and not only had this to be contended with, but a large amount of ridicule was lavished upon the "hippophagistic" movement, and had also to be overcome. Even the more sensible and serious opponents of hippophagy asserted that good horses would be too expensive to convert into food, while the flesh of old horses would be too hard and tough for mastication and digestion. In 1866, the French Government authorised the sale of *la viande de cheval*, and a *boucherie* was established in Paris. In that year only 902 solipeds were disposed of for human nourishment; but in 1869, 2,758 had been sold with this object; in 1872 the number was 5,732; and in 1875, 6,865. Since that time the sale of horse-flesh has greatly increased in Paris, where there are now a large number of shops in which it is sold. These shops are likewise numerous in all the large towns of France, and the new movement has extended to other countries. Everywhere, of course, the chief difficulty to be surmounted was the long-standing and deep-rooted prejudice to the consumption of horse-flesh as food; but this soon disappeared when the benefits derived from Decroix's efforts became apparent.

Some time since, an abortive attempt was made to popularise horse-*beef* in England; for nothing was done beyond having a banquet, at which this material was served up in various ways, and the occasion offered a grand opportunity for the intellectual sallies of the witlings of the period. Decroix believes that the aspect of affairs has changed since then, and the great success which has attended his efforts elsewhere has emboldened him to venture the introduction of *viande de cheval* into the English metropolis; and a shop for its sale has been opened in Castle Street, Leicester Square. It is almost impossible to prognosticate what measure of success will attend this bold step; for it cannot be denied that food-prejudice is perhaps stronger in Britain than in any other European country. But if enthusiasm and perseverance in a good cause—for, as has been said, the spirit of the movement is essentially philanthropic and humane—can ensure a successful issue, there can be no doubt as to the result.

From an economic and scientific point of view, there is much to be said in favour of horse-flesh entering into the list of English butcher's meat. An immense number of horses is slaughtered every year in Britain; and if their flesh could be added to the food sources of the people, a great boon would be conferred, and especially if it were sold at a lower rate than ox-beef—as has been the case in other countries.

This flesh is eminently nutritious, and there is nothing whatever disagreeable about it, either when raw or cooked—as we can testify from personal experience. The horse is a far more dainty and clean-feeding animal than some others—and especially the pig—whose flesh is a staple commodity in the dietary of high and low, rich and poor. He is much less infested with entozoa, and of these we do not know of any which are likely to make mankind their host; while he is only liable to one disease—Glanders—which renders his uncooked flesh dangerous. Therefore, from a sanitary point of view, the use of horse-flesh as food is to be commended. By the humanitarian, and particularly the admirer and lover of horses, Decroix's efforts should be gladly welcomed and supported. There can be no doubt that if the flesh of horses could find its way to the butchers' stalls, these most useful and good servants would be spared a terrible amount of cruelty now inflicted upon them when worn out. Their existence would be earlier terminated, and for some time before death they would be allowed to rest, and would receive good food. Very different is their lot, as a rule, at present.

We may remark that every care is taken in the selection of healthy horses for the butchery, and they are scrupulously examined before and after they are slaughtered. Indeed, nothing appears to have been omitted in order to render horse-flesh acceptable as an article of diet; and we can scarcely entertain a doubt that the movement instituted by M. Decroix—who is one of the most distinguished veterinarians of France—will meet with the hearty approval and countenance of the veterinary profession in this country, as well as by all those who desire that horses should be spared the tortures inflicted upon them before they go to the dogs or reach the knackers.

SWINE PLAGUE.

[We have on several occasions drawn attention to the destructive contagious disorder of swine known in this country as "Pig Typhoid"; and in commenting upon its pathology, we pointed out that the malady in question differed in most important points from human Typhoid, and that the designation was therefore erroneous and misleading. This conclusion we arrived at from personal investigation. The recent researches of Klein and others confirm our views; and the later investigations of Klein, in addition to their great interest and value, establish the fact that it is a specific malady peculiar to the porcine species. We have much pleasure in publishing the following report of these investigations, which was read before the Royal Society in February, and for a copy of which we are indebted to the author. Discarding the erroneous name, "Typhoid," hitherto given to it, we are inclined to adopt that proposed by Klein. The disease is known in America as "Intestinal Fever."—Ed.]

"*Experimental Contribution to the Etiology of Infectious Diseases, with special reference to the Doctrine of Contagium vivum.*" By E. Klein, M.D., F.R.S.

The present communication has for its object to bring before the Royal Society the results of an experimental inquiry * into the etiology of an

* This being part of a larger research carried out for the medical officer of the Local Government Board, with whose permission the present communication is made.

infectious disease of the pig, known as Hog Plague, Mal Rouge, Red Soldier, Malignant Erysipelas, or also Typhoid Fever of the Pig. There are English and Continental writers who describe the disease as Anthrax, or Splenic Fever of the Pig. I shall show, however, conclusively, in my report to the medical officer of the Local Government Board, that it is neither Typhoid Fever nor Anthrax, but is an infectious disease of its own kind, which I propose to call "Infectious Pneumo-enteritis of the Pig" (*Pneumo-enteritis contagiosa*).

Like other infectious diseases, the "Pneumo-enteritis" possesses an incubation period, followed by constitutional disturbance and certain anatomical changes. These latter are invariably affections of the lung, of the intestine, and of the lymphatic glands, not only of those of the organs of respiration and alimentation, but also those of the inguinal and lumbar regions. In the lung, the changes are those known to pathologists as Lobular Pneumonia. In the alimentary canal, the mucous membrane of the large intestine is chiefly affected, being the seat of smaller or larger ulcerations. There is generally also inflammation of the serous membranes, especially the peritoneum, leading to an exudation of lymph into the serous cavity. The skin is occasionally affected with greater or smaller red patches.

There are hæmorrhagic patches to be found in the lung and serous membranes, the endocardium, and the muscle of the heart, the mucous membrane of the intestine (especially the duodenum and large intestine), the tongue, and occasionally also the liver and spleen,—only seldom in the skin and kidney.

In anatomical respects, therefore, the Pneumo-enteritis bears undoubtedly a great resemblance to Anthrax or Splenic Fever. There exists, however, a marked difference between the two diseases in the incubation period, the general pathology,* and especially in the anatomical character of the spleen and blood. In Splenic Fever we find the spleen invariably enlarged, being the principal organ of the affection, whereas in Pneumo-enteritis it is only occasionally changed. And, likewise, the blood presents entirely different characters in the two diseases ; in Pneumo-enteritis it is not different in any marked degree from normal blood, whereas in Splenic Fever it is of dark colour—lakey, and does not coagulate at all, or only imperfectly so. Besides, the blood in Splenic Fever contains the now famous *Bacillus anthracis*, and hence its conspicuous infectious property ; whereas in Pneumo-enteritis the fresh blood does not, as a rule, contain any foreign matter, and in most instances does not possess any infectious property.

Another disease with which Pneumo-enteritis bears a great resemblance on account of certain anatomical characters—viz., inflammation of serous membranes, lung, intestine, and lymphatic glands, hæmorrhage in lung, serous membranes, endocardium, muscle of heart, intestinal mucous membrane, and other organs—is specific Septicæmia.†

The resemblance, however, is not greater than to Splenic Fever, although the differences are not less well defined. Besides others, there is this great distinction—that in Pneumo-enteritis the contagion spreads by simple cohabitation, and through the air, which it never does in Septicæmia, as in this the virus always requires a broken surface through which to enter a healthy

* In Splenic Fever, the period of incubation ranges from between a few hours to several days ; in Pneumo-enteritis it varies from two to five days and more. Splenic Fever is easily transmissible to man and the domestic animals, whereas the transmissibility of Pneumo-enteritis is much more limited. Hitherto I have succeeded in communicating it to rabbits, guinea-pigs and mice, although only with difficulty.

† Specific Septicæmia as distinct from septic infection. See Dr. Burdon-Sanderson's lectures at the University of London, 1877.

individual. Pneumo-enteritis is occasionally described as "Malignant Erysipelas" (*Mal Rouge*, "Red Soldier"), but this is in so far inadmissible, as the affection of the skin in the former is a very inconstant symptom, and in milder forms of the disease is invariably absent. More recently Pneumo-enteritis has been regarded as Typhoid Fever of the pig. From a purely anatomical point of view, the resemblance between real (*i.e.*, human) Typhoid Fever and Pneumo-enteritis is very slight indeed: so slight, in fact, that to mention it implies a total oversight of some of the most prominent symptoms,—*e.g.*, inflammation of lung and serous membranes, enlargement of inguinal, lumbar and bronchial lymphatic glands, hæmorrhages in the endocardium and muscle of the heart in Pneumo-enteritis, on the one hand, and swelling and ulceration of the lymphatic glands of the small intestine, swelling and inflammation of the spleen in real Typhoid Fever, on the other hand. The resemblance seems to be limited solely to the fact, that in both diseases there occurs ulceration in the intestine. But the distribution, the nature, and the development of these ulcerations is totally different in the two diseases.

Having said thus much as a prefatory explanation, I proceed to state the results of the experiments.*

The experiments refer to the following series :—

1. Experiments showing that the fresh blood of diseased animals does not, as a rule, contain the virus, as it fails to produce the disease when introduced into a healthy animal.

Four animals were inoculated (at different times) with the fresh blood of diseased animals. They remained healthy. When subsequently inoculated with virus-containing matter, they became smitten with the disease.

In a fifth instance, however, fresh blood did produce infection. [And this same blood proved active after having been kept sealed up in a capillary tube for several weeks.] This blood was obtained from a very severe case with copious peritoneal exudation ; in which were found peculiar abnormally-large coarsely granular cells ; the same cells were also present in the blood ; so that it appears probable that the blood became charged by absorption, during life, with matter from the peritoneal exudation. This latter always contains the virus in an active state.

2. Experiments showing that fluid as well as solid lymph of the diseased peritoneum contains the virus in a very active state.

Six successful inoculations with fluid peritoneal exudation.

There is no difference of activity to be noticed between fresh exudation, and one that had been kept sealed up in a capillary tube for several weeks.

Solid lymph obtained from the peritoneal cavity of diseased animals, having been dried at a temperature of about 38° C., proves very active.

3. Experiments showing that parts of the diseased lung, ulcerated intestine, and also diseased spleen, contains the virus in an active state. Diseased parts of lung or intestine, that were dried at a temperature of about 38° C., retain their virulence unaltered.

* In all my experiments of inoculation, the *materies morbi* was used in minimum doses—*i.e.*, a drop of fluid matter, or, in the case of solids, a particle of less than the size of a pin's head. In both cases the *materies morbi* was diluted or suspended respectively in a few minims of boiled saline solution of $\frac{3}{4}$ per cent., in order to increase its bulk, and thus to facilitate its introduction. The inoculation was invariably carried out by injection into the subcutaneous tissue, by means of the fine cannula of a hypodermic syringe, necessary care being taken that this had been previously thoroughly cleaned and disinfected. After and before inoculation, the animals have always been kept isolated and in clean and disinfected places. In order to ensure reliable results (viz., that the disease in a particular case was really a consequence of the inoculation, and not of infection through other sources), care was taken that those who attended the isolated animals were not the carriers of infection.

In all cases of Pneumo-enteritis, the trachea as well as the bronchi have frothy blood-containing mucous matter, possessed of infectious properties. It must be, therefore, supposed that the breath of a diseased animal is charged with the poison. On account of the diseased state of the intestine, also, the dung is to be regarded as infectious.

4. Experiments showing that infection is produced by cohabitation with a diseased animal, or by keeping healthy animals in a place whence a diseased animal had been removed.

5. Several experiments were made to see whether feeding healthy animals on matter obtained from the diseased organs (intestinal ulcers especially) produces the disease. The experiment was always attended with success, if a lesion-abrasion existed in the mucous membrane of the mouth or pharynx; this was usually the case when the matter had to be introduced into the mouth while the animal was being held by assistants.

There were, however, two cases which appear to prove that the disease cannot be produced by simple feeding.

This was, unfortunately, at a time when I was not as yet acquainted with the fact that in many animals the disease is of so mild a form that it can hardly be recognised in the living animal. I have not made any *post-mortem* examination of those two animals.

But since then I have made two other experiments, in which the virus was brought directly into the stomach, by means of an india-rubber tube introduced per fauces and œsophagus. In both these instances the animals became diseased, and their intestines were most conspicuously affected.

From the last three series of experiments, we may conclude that the principal way in which contagion of Pneumo-enteritis is carried out, is through the instrumentality of the air and the food.

6. This series comprises experiments to prove that the virus can be cultivated artificially—*i.e.*, outside the body of an animal; in the case of Splenic Fever it has been successfully done by Dr. Koch.

The experiments are seven in number: (*a*), two refer to cultivations commenced with fluid peritoneal exudation; (*b*), in the five others the virus had been obtained by cultivation of dried lymph from the peritoneum of an animal suffering from the disease.

(*a.*) The cultivation of the virus for the first two cases was carried out thus:

Fluid peritoneal exudation of a diseased animal had been collected and sealed up on November 6th, in a capillary glass tube. On the following day there was present a small clot due to coagulation. A minute speck of this clot was removed with the point of a clean needle, and with it was inoculated a drop of fresh aqueous humour of a healthy rabbit. This drop had been placed on a thin covering-glass, which, after the inoculation, was inverted over a small "cell," made by fixing a glass ring * on an ordinary glass slide. The covering-glass was fastened on the glass ring by means of a thin layer of pure olive-oil. The preparation was then kept in the incubator for twenty-four hours at a temperature of 32° to 33° C. After this time it was used to inoculate a new drop of aqueous humour in a similar manner to the one just described. We will call this the second generation.

This new specimen was placed in the incubator, and kept there at a temperature of 32° to 33° C., for another twenty-four hours. In the same manner a third generation was started, by inoculating a fresh drop of aqueous humour.

* The glass ring I used is 0·5 to 2 millimetres high, about 2 mm. thick, and about 18 mm. wide. If the preparation is to be observed on the hot-stage of the microscope, instead of the ordinary glass slide, one of only 0·5 mm. thickness is chosen in order to bring the preparation more rapidly up to the desired temperature.

After having been kept in the incubator for several days, it was used to inoculate two animals at different times. Both animals became infected with the disease.

(*b.*) The other five experiments were carried out with virus cultivated from solid lymph of the peritoneum of a diseased animal. The lymph had been dried at 38° C (see series 2). A small particle of dried lymph is crushed into fine powder. With a granule of this a drop of fresh aqueous humour is inoculated in the same manner as above described,—first generation.

After having been kept in the incubator for two or three days at a temperature of 32° to 33° C, it is used to inoculate a second generation, care being taken to use a trace only of the fluid part and not to come in direct contact with the original granule, which may be still discerned in the preparation.

The specimen representing the second generation is kept in the incubator for a day or two. It is then used to inoculate a fresh preparation,—third generation. And, finally, this is used for establishing a fourth generation. After having been kept in the incubator, a part of it is used for inoculating *two* animals, the inoculation being carried out at different times.

Both these animals became affected with the disease. Another portion of this fourth generation was used to start a fifth generation, then a sixth, a seventh, and an eighth generation. With this three animals were inoculated at different times. All three animals became diseased in due time.

In order to correctly interpret the results of this last (sixth) series of experiments, it is important to mention that inoculation with dried lymph, diluted far less than would correspond to the third generation in the last-named experiments, is followed by a negative result.

The microscopic examination of the cultivated liquids, proves that these are the seat of the growth and development of a kind of bacterium, which has all the characters of *Bacillus subtilis* (Cohn). The Bacillus in our case is a very fine and delicate rod, thinner than both that described by Professor Cohn in hay-infusion, and the *Bacillus anthracis* so thoroughly investigated by Dr. Koch.

Our Bacillus differs also in other respects from *Bacillus anthracis*, inasmuch as it possesses a moving period,—the *Bacillus anthracis* described by Dr. Koch is non-moving. Like *Bacillus subtilis* of hay and *Bacillus anthracis*, our Bacillus grows under favourable conditions into long leptothrix-like filaments, which occasionally form more or less complex convolutions.

In these filaments highly refractive spores make their appearance. These become free after the disintegration of the original filamentous matrix. The fully developed spores of our Bacillus differ from those of hay-bacillus and Anthrax Bacillus, by being more distinctly cylindrical and much smaller.* According to Professor Cohn (*Beiträge zur Biologie der Pflanzen* ii. 2 1876, p. 264), the long diameter of the spores of Bacillus of hay and also of Anthrax—for both are identical in morphological respects (*l.c.*, p. 275)—amounts to 0·0015—0·0022 mm., or $\frac{15 \text{ to } 22}{2500}$ths of an inch, whereas the spores of our Bacillus are little less than 0·0005 mm. or $\frac{1}{50000}$ th of an inch in their long diameter.

At first I misinterpreted the spores, regarding them as a kind of micrococci, and only after repeated observations have I succeeded in tracing them through their different stages of development.

After many failures—owing to the introduction and development of bacterium termo—I succeeded at last in obtaining, already in the second generation of original virus, a pure crop of Bacillus and its spores. With these I

* In the figures accompanying Koch's paper on *Bacillus anthracis* (*Beitr. z. Biologie d. Pflanzen* ii. 2, 1876), the spores are represented in many places as more or less spherical in shape.

started several separate cultivations, in which the germination of the spores into delicate Bacillus, the swarming stage, the rapid multiplication by division, their growth into long apparently smooth filaments, and, under sufficient access of air, the formation of the bright cylindrical spores could be distinctly traced.* (No other organisms appeared in these cultivations.) These were again used to inoculate other preparations of aqueous humour, and so on, until I succeeded in obtaining considerable quantities of liquid, containing only Bacillus and its spores. The last-named animals were infected with liquid of this kind.

Seeing that Splenic Fever, Pneumo-enteritis, and Specific Septicæmia possess a great affinity in anatomical respects, and seeing that in Splenic Fever and Pneumo-enteritis the *materies morbi* is a definite species of Bacillus—the difference of species being sufficiently great to account for the differences in the two diseases—we may with some probability expect that also the third of the group (viz. Specific Septicæmia) is due to a Bacillus. This, however, remains to be demonstrated. It seems, finally, justifiable to speculate whether or not we have in these three varieties of disease "a variation of species" in the sense of the evolution theory.

THE JAPANESE AGRICULTURAL COLLEGE.

FROM the *Japan Gazette*, of January 25th, we learn that at last the Royal Agricultural College in that country has been opened, and the course of instruction commenced. This, the first agricultural school attempted in Japan, is situated on the plain of Komaba, to the north-west of Tokio, the capital. It is established on the model of our own Agricultural College at Cirencester, the details of which appear to be pretty closely followed out, not only with regard to the farm buildings, but also in the professorial staff—five in number, and selected from the English establishment. The College was opened in state by the Mikado, on January 24th, who, together with several members of the imperial family, ministers, and other high officials, were

* In the convolutions of the filaments, the outlines of these latter become gradually lost after the spores are formed. The spores appear now to be embedded in a transparent gelatinous matrix. At the edges of such masses, or where they are in a sufficiently thin layer, the linear arrangement of the spores can be still recognised. But there is undoubtedly a transparent jelly present in these masses forming the ground substance for the spores and fibres. Professor Cohn mentions (*l. c.*, p. 263) a similar jelly in the convolution of hay-bacillus. I entirely differ from Dr. Koch with regard to the mode of germination of the spores of Bacillus. Koch states (*l. c.*, p. 289, and also in his latest paper on Bacteridæ, in *Biol. d. Pfl.*, 2 Bd. 3 Heft.), that it is not the highly refractive spore which directly produces the Bacillus, but that the hyaline gelatinous envelope surrounding each spore elongates so as to form the Bacillus, while the bright spore-matter itself gradually diminishes and finally disappears. From *à priori* reasons it is impossible to assume that this can be so—viz., that the gelatinous envelope should grow into the Bacillus; for Cohn proved beyond doubt that in the case of hay-bacillus, the spores germinate even after having been exposed to boiling heat. Surely this gelatinous envelope, if living protoplasm, must become, under these conditions, deprived of its germinating power. Direct observation proves that, in my case, the spores possess another membrane within that gelatinous envelope, and during germination this inner membrane is broken at one pole, and the contents of the spore protrudes and grows as the Bacillus. This is also in accordance with the observations of Professor Cohn, for this authority states (*l. c.*, p. 265): "Die Sporen schwollen etwas an und trieben an einem Ende einen kurren Kesinschlauch."

received by the Home Minister. His Majesty spoke to the following effect :—

"We think that farming is one of the principal sources of the prosperity of a country. By its means the people raise a variety of useful articles, and so become wealthy. Farming also assists materially in the advancement of science. And now that this College has been erected for the development of the science of agriculture, we take great pleasure in being personally present at the opening ceremonies, and wish the institution every success. We hope that its influence in the advancement of science and in promoting the welfare and prosperity of the people will be great."

The keys of the building were then handed to the Emperor, from whom they passed to the Home Minister, who delivered the following address :—

"Your Majesty the Emperor, on receiving the report of the completion of the buildings of the Agricultural College, graciously resolved personally to perform the opening ceremony. Your Majesty has, in your wisdom, declared the science of agriculture to be a most important one, and it is a fortunate thing both for the country and the people that your Majesty, by establishing this school, where agriculture will be treated as a science, increases the fertility of the soil, and the prosperity of the people. Your Majesty's servant Toshimichi will bear in mind your wise intentions, and devote himself with zeal and diligence to this task. From this day the agriculture of our country will gradually improve, the soil become more productive, the people more wealthy. I, Okubo Toshimichi, Minister of the Home Department and your Majesty's servant, most respectfully offer my congratulations on this 24th January, the 11th year of Meiji.

The keys having again been handed to Professor McBride, who is in charge of the veterinary department of the school, and is also its director, he spoke as follows :—

"Your Majesty the Emperor has graced the opening ceremony with your presence, and your foreign servants, J. A. McBride and his colleagues, feel greatly honoured by this act. Your foreign servants, having been appointed teachers of agriculture, bear a heavy responsibility, and, thanking your Majesty for the favour conferred, we shall briefly state what we consider to be our duty. In our opinion the wealth of a country has its root and foundation in agriculture. Your Majesty has always taken great interest in agriculture, and we, your foreign servants, feel the responsibility we are under to teach the pupils of the College the science of agriculture in all its branches. At present the best methods of choosing seeds, sowing, feeding cattle, using manure, etc., have been closely investigated in Europe, and tools and machines for agricultural purposes have been improved and multiplied. We, your foreign servants, will attend to these matters, and, by giving both theoretical and practical lessons in farming, we hope to hasten the progress of agriculture in your Majesty's dominions."

His Majesty replied :—

"The buildings of the Agricultural College being completed, we, the Mikado, now declare the College opened. We hope that you will co-operate with our intention to improve agriculture by teaching your pupils, and thus advance farming in our country."

The Emperor having re-entered his carriage, the imperial procession left in the same order as that in which it arrived ; and the grounds and buildings were thrown open for the remainder of the day to the general public.

The farm contains upwards of 120 acres of ground, until quite recently overrun with bamboo grass, which has pretty well exhausted what fertility it might have possessed. This, however, is of little importance, as the intention is to teach the students what effects can be produced in all kinds of soil by proper systems of manuring, and attention to change of crops. 137

pupils are already entered on the books of the institution, which is intended for 150 students. Of these 100 are to be supported and trained at the expense of the Government, and the remainder at that of their friends. It appears that no expense has been spared in provision alike for their physical comfort and mental and practical training.

We shall now soon expect to learn much with regard to the animal diseases prevalent in Japan, and the special characters assumed by those maladies which are known in other parts of the world.

THE FITZWYGRAM PRIZE COMPETITION.

THE competition for these prizes will take place early in June. The terms of the competition have already been published in this journal, and intending competitors will obtain all necessary information on application to the secretary of the Royal College of Veterinary Surgeons.

OUR FOREIGN CONTEMPORARIES.

WHETHER it be that our Continental colleagues entertain a very low estimate of veterinary medicine as it exists in this country, or whether the English language proves a serious obstacle to their acquainting themselves with what is being done by the profession here, certain it is that our progress and our labours receive very scant recognition by them; indeed, with the exception of occasional notices in two or three journals, veterinary science in Great Britain might be altogether non-existent, so far as our foreign contemporaries are concerned. Perhaps the first reason is the one most likely to be correct; for until quite recently the miserable standard of professional education maintained in the schools, and the entire absence of any preliminary general educational tests by which the fitness of intending students could be ascertained, operated most powerfully in bringing disfavour and ridicule upon the veterinary profession in England, and not only among foreign veterinarians, but even with our own public. What could be thought of a profession in which the most illiterate men, after a few months' lounging about a school with their hands in their pockets, and listening to a few discursive stereotyped lectures—the greater number of which they were perhaps unable to comprehend—could become graduates?

The painful and most degraded position which this most important branch of medicine has been allowed to hold in this country has not been due to a non-appreciation of its value—for the public had very little opportunity of learning that—but to the ever-to-be-lamented want of education, general and technical, of only too many of its practitioners. Thanks to the energetic action of the Royal College of Veterinary Surgeons, which appears to have disentangled itself from the fetters that rendered it a merely passive instrument in the hands of those who opposed all improvement—perhaps because they were afraid of it—there has been, and there is still, a good prospect of rapid amendment. This greatly improved state of affairs is almost coincident with the advent of the *Veterinary Journal*, when the profession, for the first time for very many years, found itself represented, politically and scientifically, by an independent and impartial organ, which had no mere school interests to serve, and was devoted solely and wholly to the general good. The history of the last three years will amply testify to the success which has attended the efforts of the Royal College of Veterinary Surgeons, and of

those who have conducted and maintained the character of this journal. Suffice it to say, that in this country veterinary medicine was never so ardently studied by its graduates or appreciated by the public, nor did its literature ever stand so high or hold so conspicuous a place, as at present.

This progress appears to be altogether overlooked by our foreign contemporaries, and those of them who condescend to notice us appear to imagine that we are still in the position we were compelled to assume before this journal was commenced—in fact, that the profession and its literature is half a century behind the age.

At least, this might be inferred from what appears in our excellent contemporary, the *Repertorium der Thierheilkunde*, of Stuttgart, in its first number of the present year. In his extracts from contemporary literature (p. 70), the learned Professor Hering alludes to the *Veterinarian* as the only veterinary journal in the English language; and then, taking that periodical as representing the present state of veterinary medicine among us, he makes some not very complimentary remarks on its behalf. With regard to the therapeutic treatment of disease, Hering finds indications which lead him to state that no change has taken place in this direction for the last fifty or more years, and that purgatives, severe counter-irritation, and the so-called fever and diffusible-stimulant treatment, are still in vogue. According to the same authority, and from the same source of information, the thermometer, microscope, or chemical analyses are extremely rarely resorted to for the diagnosis of disease. The evil effects of this omission are, in the opinion of Hering, apparent in the neglected state of our therapeutics, through the imperfect diagnoses arrived at.

Professor Hering is evidently not aware that the journal alluded to is not the only veterinary periodical in the English language, and that it does not, from any point of view, testify to the present condition of veterinary medicine in English-speaking countries. There are two other much more modern journals published in that language, and which aspire to present something better in the way of diagnosis, therapeutics, and veterinary science in general, than prevailed fifty or more years ago. The "practical" men of that period, and perhaps some of the present day, knew nothing of the thermometer, microscope, or pathological chemistry; but we can assure Professor Hering that these aids to diagnosis and therapeutical measures are by no means neglected by the younger and more scientific members of the profession in England, and the practical advantages to be derived from them are as thoroughly appreciated as in Germany. For more than twenty years we have personally resorted to these aids whenever necessary, and we know very many veterinary surgeons who have also availed themselves of their assistance.

We trust Professor Hering and other Continental authorities will not judge of the acquirements, status, or literature of the veterinary profession in these islands, by the evidence afforded in the journal which, it is affirmed, represents the ideas and medical practice of more than half a century ago. They must turn their attention elsewhere; and so far as our literature is concerned—meagre though it be, from the paucity of writers—they will find that our diagnoses and treatment, as well as our general medical knowledge, is not so much behind the age. With such an institution as the Royal College of Veterinary Surgeons, if it only does its duty, we are now in perhaps a better position to produce really scientific and useful veterinary surgeons than any country on the Continent. At any rate, the profession has its welfare in its own hands, and every one of its members can have a voice, as he has a direct interest, in its affairs. We are certainly not what we were fifty years ago, notwithstanding the witness Professor Hering brings forward to prove that we have been, as M. Zundel, in his new edition of D'Arboval's "Dictionnaire," says, "drifting into a learned empiricism" (*savant empirisme*).

Reviews.

KIRKE'S HANDBOOK OF PHYSIOLOGY. By W. Morrant Baker, F.R.C.S. London: J. Murray.

The ninth edition of this excellent handbook of physiology shows a persistent determination in its editor and publisher to maintain its reputation as a standard work on the subject. Those who remember the earlier editions, and compare them with this, cannot fail to be struck with the immense progress which has taken place in physiological knowledge. The bulky and closely-printed volume before us is nearly twice the size of the first edition, while the ground it covers is vastly increased in area. The work is well written up to date, and contains the results of all the most recent and trustworthy observations and researches in biological science, presented in a very lucid and attractive manner. The great and deserved popularity which the handbook has enjoyed for so many years, among medical and veterinary students, is certain to continue so long as the same amount of care, skill, and liberality, are bestowed upon it in successive editions. Further praise would be superfluous.

THE COUNTRIES OF THE WORLD. By R. Brown, M.A. London: Cassell, Petter, and Galpin.

Two volumes of this beautiful and very interesting work have now been published; and to those who desire a comprehensive and instructive account of the various countries of the world, presented in a particularly attractive form, and most artistically and graphically illustrated, nothing better could be recommended. Commencing with the world of a thousand years ago, Mr. Brown carries us through the Arctic regions, the fur countries of North America, Canada, the United States, Mexico, and the West Indies. Pen and pencil have done their work well, and the volumes are got up in the handsome style which characterises the literary productions of the enterprising publishers—the woodcuts being very numerous and, as a rule, excellent. We do not know of a more beautiful and useful geographical work than the "Countries of the World," and those who purchase it will be in possession of a mine of most instructive and varied information, which cannot but enlarge their notions of the globe on which we live, of its capabilities, resources, wonders, and beauties. As an educational work, this has large claims to attention.

Army Veterinary Department.

Gazette, April 2nd.

YEOMANRY CAVALRY.

Royal East Kent.—Veterinary-Surg. Thomas Jex resigns his commission.

Gazette, April 9th.

1st West York.—Alfred Hoole, gent., to be Veterinary-Surg.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD APRIL 9TH, 1878.

Present—The President in the chair; Professors Brown, Pritchard, and Williams; Messrs. Batt, Blakeway, Broad, Collins, Cox, Cuthbert, Dray, Fleming, Greaves, Harpley, Smith, Taylor, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of last meeting were read and confirmed.

Correspondence.

The SECRETARY announced that the following letters had been received:—

Letters from Professors Walley and McCall, Messrs. Cartwright, Moon, Withers, and Balls, regretting their inability to attend the meeting.

A letter was also received from Mr. Reynolds, stating he was unable to attend, and asking whether it would not be irregular at the present meeting to discuss the President's motion for the suspension of Bye-laws 32 and 33.

The SECRETARY announced that Mr. Fleming had presented to the museum a specimen of diseased hock.

On the motion of Mr. BROAD, seconded by Mr. DRAY, a vote of thanks was awarded to Mr. Fleming for his presentation.

Examinations.

At meetings of the Court of Examiners, held on the 1st, 2nd, and 3rd of April, for the Pass Examination, 16 students passed and 8 were rejected.

At meetings held on the 4th and 5th of April, for the "Second Examination," 15 students passed and 2 were rejected; and on the 6th and 8th of April, 8 students passed their examination under the two and three years' system, and 7 were rejected.

The obituary notice was read.

The SECRETARY stated that 26 registers had been sold, and 21 were in hand; and, as registrar, he asked the sanction of the Council for the re-publication of the register, in order to include the new members of the profession. This was agreed to.

Some conversation arose as to whether the following question and answer, as reported in the proceedings of the last special meeting, were correct:—The question Mr. Williams asked was, whether the inspector without the sanction of the local authority could order the slaughter of diseased animals under the present Act? Professor Brown: "Certainly not; the local authority were bound in the first place to inquire into the correctness of the report. The inspector would have no such authority without the local authority delegated it."

Professor WILLIAMS said that the observation of the judge in a case against himself seemed to imply the opposite. "He had to inform the jury that, so far as he could judge, the defender had no power in virtue of his office to order the slaughter of these cows. That matter rested entirely with the local authority, who could not devolve the whole of their statutory powers upon an inspector. The duty of the inspector after the inspection plainly was (assuming that he was not acting with the assent of pursuer) to give

immediate notice, the effect of which would have been to bring into operation the statutory rules already referred to. Then, supposing both animals to have been affected with disease (Pleuro-pneumonia), the pursuer's case would not necessarily fail, because the defender had no right to give the order for slaughter." Of course he ordered slaughter, because he had always understood that an inspector was to order slaughter with the least possible delay. The inspectors had power delegated to them in general terms ; but the judge in the case he had referred to said that it must be done by the local authorities in each individual case.

. Professor BROWN said it was a doubtful point. The local authorities might exceed their powers, and the judge rule against them. In the present Bill the question was raised by the draughtsman, and he considered the clause sufficient to cover it.

The SECRETARY stated that a letter had been received from Mr. Powis, asking for copies of certain motions, which had been supplied.

A letter had also been received from Mr. Loch, enclosing a copy of the amended "Contagious Diseases (Animals) Bill."

A letter was read from the Clerk of the Privy Council Veterinary Department, dated 14th March, acknowledging the receipt of a letter written on the 7th March, enclosing report of the committee appointed by the Royal College of Veterinary Surgeons on the Contagious Diseases (Animals) Bill, and stating that it would be submitted to the Lords of the Council.

The SECRETARY read the following report of the Committee on the Bill :—

"At a meeting of the Committee appointed by the Council of the Royal College of Veterinary Surgeons to take into consideration a letter from the Lords of the Privy Council, relative to the Amended Contagious Diseases (Animals) Bill now before Parliament, and requesting observations thereon,

"The Committee have to report that, after carefully considering the provisions of the Bill, they are of opinion that these provisions are, on the whole, of a satisfactory character, and if efficiently carried out, will largely tend to prevent and suppress—if they do not entirely succeed in doing so—Cattle Plague, Pleuro-pneumonia, and Foot-and-mouth Disease.

"With regard to the other maladies alluded to in the Bill—viz., Sheep-pox, Sheep-scab, and Glanders and Farcy—the Committee cannot make any observations, as they are not the subject of special legislation in this Bill, like the afore-mentioned diseases.

"Nevertheless, the Committee would beg to point out that these disorders are very contagious and destructive, and should receive equal attention in proposed legislation.

"The Committee also deem it their duty to point out that there are other contagious and dangerous diseases not mentioned in the Bill, but which should be considered in dealing with this important subject. Among these maladies we may specify Rabies, Swine Plague, and Splenic Apoplexy or Anthrax Fever. They are likewise of opinion that the power of entry, in cases where Glanders or Farcy exists, or is suspected to exist, should be given to the veterinary inspector.

"With regard to the 'declaration of freedom from Pleuro-pneumonia,' the Committee consider that the period of fifty-six clear days mentioned in the Bill does not afford absolute security, as the latent or incubative stage occasionally extends beyond that time.

"In clause 20 (page 7), paragraphs 1 and 2, the Committee think that in order to ensure a clear definition, instead of the word 'cessation' of the disease, it would be better to substitute 'after date of complete recovery of the animal last affected.'

"With regard to foreign animals, the Committee are strongly of opinion that slaughter at the port of embarkation is greatly to be preferred to that at

the port of debarkation, as it would reduce in a much greater degree the risk of importing contagious disease.

"Quarantine, to be safe, will require the exercise of the greatest vigilance and skill on the part of the veterinary inspectors and superintendents.

"The Committee observe, with much satisfaction, that local authorities must appoint a member of the Royal College of Veterinary Surgeons as veterinary inspector. The urgent necessity for this step has long been felt; and its importance is now immensely enhanced from the fact that the Bill imposes such serious restrictions on owners of animals, which the employment of fully qualified and competent men can alone render acceptable to them.

"The Committee are confident that the success of legislative measures for the prevention and suppression of contagious diseases in animals, must greatly depend upon the skill and judgment of the inspectors; for, owing to the employment hitherto of very many men who were unacquainted with the nature and symptoms of these disorders, much hardship has been inflicted on stock-owners, and the objects of previous Bills have been in a great measure defeated."

Mr. BROAD moved, and Professor WILLIAMS seconded, "That the report be received."

The motion was carried.

Professor BROWN then at some length entered upon an explanation of several points in the Bill. What the Council had to apprehend was that the Scotch authorities would use their influence to get the word "veterinary" extended to include holders of the Agricultural Society's certificate. It was a point on which he should like to have the opinion of the Council with reference to the action which ought to be taken. His own feeling was that it would be far better to strike out the word "veterinary" altogether, and content themselves with the use of the word "inspector," rather than extend it to include persons to whom the word would not properly apply. This was a point upon which the promoters of the Bill probably had no strong opinions, and any representation coming from the Council might have some weight when the Bill reached the House of Commons.

Some conversation then ensued as to the best course to be pursued—some of the members urging that the word "veterinary" should be excluded before the word "inspector."

The PRESIDENT thought the best plan would be to adopt in Scotland the same expression as in Ireland, and leave the term undefined.

Mr. GREAVES thought it would be an injustice to professional men in Scotland if those who only held the Highland and Agricultural Society's certificate were admitted on an equality with the veterinary surgeons who held the diploma of the Royal College of Veterinary Surgeons. He also thought it would be a great injustice to stock-owners to appoint inspectors who were incompetent for the office. He was entirely of the President's opinion, that it would be better to leave the matter the same as it was in Ireland—namely, to call them inspectors, but to deny them the power to call themselves "veterinary" inspectors.

After some further conversation, it was ultimately resolved to give Professor Brown discretionary power as to what course should be advised.

Medical Act Amendment Bill.

The SECRETARY read the following Report of the Committee:—

A letter containing the following resolution was submitted to the Lord President of the Privy Council—Resolved: "That the last paragraph of Clause 22 is very objectionable,—that nothing in this section shall impose a fine on a person engaged solely in the cure or treatment of the diseases or injuries of animals and not of human beings,—from the fact that it protects

unqualified persons who are engaged in the treatment and cure of the diseases and injuries of animals."

The Committee suggest that either the clause should be struck out, or the words "any duly qualified person" inserted.

The SECRETARY read a letter from Professor Brown, in which he stated that on March 16th he received a letter from the Clerk of the Privy Council, stating that the Lord President had not the smallest objection to the omission of the last paragraph of Clause 22, which was only introduced with the view of preventing the possibility of any vexatious proceedings being instituted against members of the Royal College, and that he had instructed the draughtsman to remove the paragraph in question.

The SECRETARY stated that in drawing the College dividends in January last, it was found that the sum of £122 16*s.* 3*d.* consols, purchased last October for the College Fund, had been wrongly invested by Sir Samuel Scott and Co., the sum having been added to the stock of the Royal College of Veterinary Surgeons instead of the College Fund. Sir Samuel Scott and Co. had written that, for the purposes of the transfer, it would be necessary for Messrs. Cartwright, Balls, and Collins, to attend the bank, or that a power of attorney should be obtained. It was thought proper to obtain the power of attorney, and the sum had now been properly invested in the College Fund.

Finance Committee.

The report stated that the vouchers and receipts for payments during the preceding quarter had been examined and found correct. The present liabilities amounted to £130 5*s.* 2*d.*, which the Committee recommended should be discharged.

The SECRETARY explained that the discrepancy of £1 in the accounts, previously referred to, was in consequence of that sum having been underdrawn in October last, a cheque for £30 0*s.* 7*d.* having been drawn instead of for £31 0*s.* 10*d.* He asked permission of the Council to sanction a cheque for £1 0*s.* 3*d.* to be drawn, in order to rectify the mistake.

The permission was granted.

The Treasurer's accounts and balance-sheet were read and received and adopted.

Cheques were ordered to be drawn for the current expenses.

Secretary's Salary.

Mr. DRAY moved that the Secretary be re-allowed the original sum of £20 every year for hire of servants, and also be reimbursed for any deduction made on this head during the past year—namely, the sum of £10.

Professor BROWN seconded the motion, which was carried.

The Fitzwygram Prizes.

The PRESIDENT announced that instead of at Easter, as formerly, he had deferred these examinations to the summer, in order to suit the convenience of the London and Edinburgh Schools, whose sessions did not occur at the same time.

The examinations were fixed for the 1st of June, and the President, at the express wish of the Council, agreed to select his own examiners.

The PRESIDENT said that there was a motion standing in his name for the suspension of Bye-laws 32 and 33. The notice was only given on the 8th of March, and therefore the matter could not be considered at the present meeting. He wished that it could have been considered, and he thought that there were very good special reasons at the present moment why it was very desirable it should be; but it could not be considered, and there was an end

of the matter. Perhaps, however, he would be allowed to make a remark, because a misconception had occurred on the subject—namely, that the proposal he made would admit an inferiorly educated class of people into the profession. The resolution was to allow those who had studied the full term at the recognised veterinary colleges to pass the usual full examinations, only with the difference that they might pass the three examinations at one and the same time. In fact, the resolution might have been so worded, but the only thing which prevented this was the existence of Rules 32 and 33.

The Annual Meeting.

It was arranged that the annual meeting be held on the first Monday in May, at 1 o'clock.

The SECRETARY stated that the following gentlemen had been proposed as members of Council at the ensuing election :—

The PRESIDENT proposed Mr. Jas. Collins and Mr. John Roalfe Cox, London.

Mr. DRAY proposed Mr. Coates and Mr. George Williams, London.

Mr. COX proposed General Sir Frederick Fitzwygram, London.

Mr. WM. WHITTLE (of Worsley, Manchester), proposed Mr. George Morgan, of Liverpool ; and

Mr. GEORGE FLEMING proposed Mr. Gowing, London.

The Annual Report.

Messrs. Cox, Dray, Fleming, Woodger, and the Secretary were appointed as a committee to draw up the annual report.

Mr. Alfred Withers and Mr. Thomas Moore were appointed auditors.

Mr. Dray and Mr. Moon were appointed members to compose the Dinner Committee.

Special Meeting.

The meeting was then made special, for the further consideration and adoption of Bye-law 50 ; but the PRESIDENT said that if the proposed alteration were adopted at the meeting, it would be necessary to hold a special meeting seven days hence, which would be somewhat inconvenient. In consequence of what passed some time ago at the Council meeting, he had given a notice of motion to alter Bye-law 50, line 5 ; to insert in lieu of "or a certificate of liberal examination by the College of Preceptors," "or after an examination by the College of Preceptors on questions to be fixed from time to time by the Council." That would also involve another special meeting, and as they involved the same principle, he proposed to adjourn their consideration for three months, when one special meeting would be sufficient.

This having been agreed to, the proceedings terminated.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the several meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held during the week commencing April 1st, the following students from the Royal Veterinary College received their diplomas, and were admitted members of the profession :—

Mr. Walter Barron Hart, London.
„ Edward Miles Perry, New Bedford, Massachusetts, U.S.
„ Richard Page Bull, Tysoe, Warwickshire.
„ William Stanley Carless, Hoveringham, Notts.

Mr. George Wartnaby, Foremark Farm, near Derby.
„ John Joseph Burchnall, Stanford, Leicestershire.
„ William Alfred South, London.
„ Sidney Sturgess, Ashby-de-la-Zouch, Leicestershire.
„ William Edward White, Sheffield.
„ John Richard Carless, Stoke-on-Trent.
„ William Ashton Hancock, Uxbridge, Middlesex.
„ James Broad, jun., London.
„ Frederic William Day, Alderton, Gloucestershire.
„ Edward Lyne Dixson, Margate.
„ James Gifford Stephens, Tockington, Gloucestershire.
„ Charles Comber Hoadley, London.

The following gentleman passed his examination with *very great credit :* Mr. Wm. Ashton Hancock ; and Messrs. Edward Miles Perry, and James Broad, jun., with *great credit.*

The following students of the Royal Veterinary College passed their "Second Examination," at the meetings of the Court of Examiners on April 4th and 5th :—

Mr. James Mills.
„ Frederick Leigh Slater.
„ Kirtlan Smith.
„ Edward Simpson Shave.
„ John Davies Thomas.
„ Joseph Bainbridge.
„ William Frank Smith.
Mr. James Blakeway.
„ Titus Littler.
„ Henry Shaw.
„ Wm. Henry M'Caldon.
„ William Robert Emery.
„ William Alston Edgar.
„ Chas. Hedworth Golledge.
Mr. Arthur Cox.

The following students passed their "First Examination" on April 6th and 8th :—

Mr. Chas. Henry Smyth Neate.
„ Henry James Kelly.
„ Samuel Benjamin Draper.
„ Walter William Gulleford.
Mr. Geo. Gartside Mayor.
„ Chas. St. Lo Wilkinson.
„ Walter Jas. Page Palmer.
„ Edward Slipper.

CENTRAL VETERINARY MEDICAL SOCIETY.

At the ordinary meeting of the above Society, held at 10, Red Lion Square, W.C., March 7th, F. J. Mavor, Esq., in the absence of the President, took the chair.

Mr. Alexander Mavor showed an interesting calculus from the parotid duct of a horse—a rather rare occurrence, the various pieces fitting together in a sort of chain. They were removed during life by operating for an abscess ; when they passed out the parts soon healed.

Mr. Fleming observed that it was interesting there were so many pieces, and that the fistula had healed so quickly, for, as a rule, these fistulæ were very troublesome.

Mr. A. Mavor further said there were five fistulæ, and now nothing was apparent. He did not know if the parotid duct was destroyed. The stones were composed of carbonate of lime. At the last the horse was nearly starved. The tumour was three years forming, and gradually increased in size, the swelling preventing the animal eating. The analysis made returned the weight of the calculi at 1,868 grs. Excepting a mere trace of organic matter, they were wholly composed of carbonate of lime ; they were entirely soluble, there was brisk effervescence in dilute mineral and acetic acid, supersaturated with ammonia, and they gave a large

precipitate of oxalate of ammonia. There was only one side of the face affected. The horse was about ten years of age, and in regular work; and in operating he had cut the duct.

Mr. HANCOCK then submitted a specimen of tumour of the rectum from a small pony, eight or nine hands high, very aged. It was supposed to have piles. Finding the tumour, and that the bowels were confined and a difficulty of passing the fæces, he administered a mild purgative; and, knowing that in human surgery there were two forms of removal—ligature and cautery—he determined on the latter, and, bringing the tumour well out of the rectum, burned it off. No fistula followed, and it healed with a slight cicatrix.

Mr. FLEMING thought it scarcely a tumour, but more like a duplicate of the membrane.

Mr. MOORE, sen., concurred in the opinion offered, and that it had hardened by exposure to the air.

The CHAIRMAN also thought it more due to contraction of the sphincter embracing the portion of gut, which had ultimately hardened.

The adjourned discussion on Rabies was then resumed. The SECRETARY (Mr. James Rowe) said,—Regarding a few points touched upon in the essay and in discussion, he had not seen an instance of Rabies in a stray or neglected dog; in the practice of others he found them in confinement, and assumed they were sent by the owners. He found it difficult to believe that no case had yet appeared in the Dog's Home, seeing how many are there congregated, and that they are some days together. If we were to accept it as a fact (bearing in mind that the keeper and manager are not professional men, and there was, he believed, no veterinary inspector), and if the spontaneous generation of the disease theory had any weight, or if the mongrel and stray class are the medium of mischief, there was much to confound us in our search for its appearance and spread. He denied the spontaneous theory, feeling our ignorance is great when we make it our basis of belief. He did not deny the curability of the affection in its acuter stages, but believed that the veterinary practitioner would hardly find assistants to help him treat the case, or, from the exceptional risk of inoculation himself, manually perform his duty as earnestly as he would in the treatment of *every* other animal affection. He had been rebuked for his temerity in handling such cases; and the thought of risk incurred, but happily averted, was very deterring to continuance in the same manner. He noticed writers to the *Field* and others ask boldly why veterinary surgeons did not personally treat such cases and record their experience, and imagined the writers had not themselves faced the disease, or they would hardly ask a veterinary surgeon to coolly advance on an animal he probably never saw before, treat the local injury if known, and administer medicine.

Last February 2nd he had to attend a rabid Dalmatian dog loose in a private house. Found he was snappish and violent in starts, dating from some four days prior; that he ran from room to room, resting nowhere, and barked at nothing, the howl being distinctive. The owner, to confine him in one room, had threatened him with a stick, which the once quiet pet dog now seized and crunched. The owner, ramming it down his throat, shut the door; but he bounded through the window, cutting the mouth and foot, and when he reached the house had left blood-trails about the place. He would have risked leading him home; but those who knew him would not chain him, averring he would not allow any one to do so without injury. Having undertaken to poison him, syringed H.Cy. down the throat as he stood under the table; he grabbed at the syringe and then at him, and had he not seized the nape of the neck, and being left-handed, emptied the syringe, the result might have been serious. No *post-mortem* examination was allowed. He referred to this case, as he bit two other dogs a few days prior,

about January 29th. Knowing one well, the owner was cautioned to let him have early information if anything happened. The wound near the mouth soon healed without treatment. On Feb. 13th saw him again ; he was restless and irritable—previously a very quiet beast, always with the park-keeper, his owner. 14th. Was received and put in a loose-box, on the chain, having gnawed both legs, and being excitable, and with a changed bark, champing the jaws continually as if the hair round the mouth interfered with him. 18th. Had dropping of jaw ; very quiet, and from eyes and nose a thick mucous discharge, not apparent the previous day : he had apparently been eating his fæces, the mouth being full of them. 19th. Found dead in the morning. The *post-mortem* inspection showed no satisfactory or conclusive results : the intestines and stomach were empty of food and foreign matters ; the trachea only flushed to a slight degree at larynx ; meninges of brain injected, though this was not apparent to any great extent in the atlas or dentatal part of the medulla oblongata. Leg sores scabby, and no more bitten. The parts were left with Professor Axe, who also was not quite agreed as to its being Rabies. The dog was about six years old. He failed to see how raising the tax would benefit the dog or his owner ; it would not lessen the number of coarse-bred dogs among the middle class, finding one was as much estimated as the other by the owner, and would only exempt the blind man. That dogs have increased is doubtless true, the numerous dog shows having enhanced their breeding and value ; but he was unaware of any outbreak of Rabies from such shows having been held.

With regard to treatment, it escaped him what the essayist advocated in regard to the supposed rabid dog : whether to destroy it at once, or let it live its life out under the scrutiny of the veterinary surgeon, as confirmative or not of the disease. Whenever he could, he would endeavour to pursue the latter course ; one benefit, professionally speaking, would be in the examination of the lesions afterwards, so as to arrive at a better knowledge.

The legal question concerned us not a little, and with it we should associate mental disease, excitement, a brooding, or a pseudo-Hydrophobia in the human subject.

Lastly, and not least by far, the *moral influence* now asked of us by the victims of bites, or those scared by the company of rabid patients. There we could not be too careful, and there we were the allies of the sister profession, who were beginning to look to us with confidence to recognise a fell disease no less fatal to our patients than to theirs, and which our individual efforts might do much to diminish in numbers. He would ask, Can we not distinctly judge between epileptic fits from any cause and Rabies? and between fits from teething, occasional excitement, viciousness—natural, or the result of preceding ill-treatment—and Rabies? Assuredly we can, and so also can we quiet the alarm of a person bitten under such a state of things. He sincerely hoped that the many who had consulted him for themselves had not done so in vain, and that his personal experience from bites under many conditions was a sufficient guarantee for his opinion. Not long since he paid a guinea claim for a bite, which the owner first paid, then deducted from the account a month or more after. There a passer-by was snapped at by his patient, who unknowingly brushed him as he went ; the claim was for actual expenses. In another submitted to him for an opinion, £25 was claimed and paid in opposition to his opinion, the dog being sound in health ; the man was worried into delirium tremens by drink and his comrades' cruel badinage ; and other instances he knew of. A physician sent him to examine a dog on behalf of his cook, whose fears caused sleeplessness ; a coachman bitten in the groin by the mad greyhound at Shoreham, as reported some years since, has several lozenge-shaped

blue raised scars to show it, is greatly excited when the topic is touched on, and cannot get rid of the fear. He would have no fear in sucking a wound from a dog, horse, or cat; and he would resort to Turkish baths, acid injection with a pipette or glass brush, of which he submitted samples, and moderate indulgence in alcoholic drinks, endeavouring by pursuing other subjects more assiduously to forget the circumstance, and trust the result to One wiser than himself.

The CHAIRMAN said there seemed to be a variety of opinions as to its nature; few people had the hardihood to undertake the treatment of the disease, so far as the dog was concerned. A horse could be managed, though they were sometimes savage. As to the treatment, they did not even know the nature of Rabies.

Mr. HOWARD had given a great deal of attention to Rabies as a disease; he believed it was due to a specific animal poison passed into the blood, and its period of latency entirely depended on the animal's strength; with a strong constitution that it was eliminated by the ordinary excretory organs, and no further ill effects happened. In other instances, when the general health was disturbed, it manifested itself by the irritant action of the blood on the nerve centres, particularly the medulla oblongata, giving rise to the violent convulsion witnessed. As to treatment, he was convinced it had hitherto been on a wrong principle—the efforts made being to treat the symptoms, and not the disease itself. Curara simply soothed the nervous system and paralysed the action of the nerve centres. He objected to such palliative measures. It had been his fortune to treat successfully a rabid dog some three years ago, when he devoted almost without intermission a whole week to the case. He wore a fencing costume and gloves, and made very free with a riding-whip, to command the attention of his patient. The dog tore up the wooden floor, gnawing it continually, and at the chain, howling incessantly. The dog recovered, and was now alive; and the case had led him to believe that in the first stage the dogs travel the streets, biting others, go through the stages, and die, or recover. He treated with quinine and turpentine,—anti-spasmodics which, he held, acted specifically on the blood. He was induced to use it by reading of a case of Anthrax in the human being, which was treated successfully with quinine, although deemed hopeless. He gave it by main force from the graduated measure; the quinine was given in two-grain doses one half-hour, and the turpentine next in five-minim doses. There was no difficulty in swallowing—the less so because it was not of the dumb kind. The whipping the dog did not seem to heed.

Mr. MOORE, sen., said this was a very interesting case, but would only do for one possessed of the necessary courage; and he would not like to go through the ordeal. A great difficulty in treatment lay in the dog having often swallowed foreign substances, and over-distended the stomach thereby; here he thought cure was hopeless. He thought the erroneous ideas prevalent in the country should be combated, such as those put forward by Sir Thomas Watson,—that there were spontaneous cases, and more than the inoculated cases. He believed dogs might be affected with Rabies, communicate the disease, and yet recover. In the Stockport case, where the boy died in two months, it was shown the dog was still in good health. What had communicated Hydrophobia to the boy here, if not the rabid dog?

Mr. FLEMING said his experience of the power of swallowing was different to Mr. Howard's. In all the animals he had seen there was, more or less, inability to swallow; that led him to doubt the nature of the case related. He believed almost everything had been tried with regard to the human being, and yet the termination was fatal. Curara was a very dangerous agent, as it paralysed the muscles, and might be pushed too far; the remedy in the hands of a veterinary surgeon would prove useless, inasmuch

as the human and animal symptoms differ so widely: in man there was a very distressing spasm of the muscles; in the dog, generally, there was paralysis at a very early stage, so they did not want agents to induce it. The use of the whip recalled to his mind the practice in the East, of flogging the madmen there, believing the devil had got into them.

In his reply Mr. STEELE said his paper was more to elicit opinions on the important points than of opposing prevalent ideas. Mr. Howard, in his interesting case, had endorsed an opinion he had expressed in his paper—that in certain cases the poison might be thrown off; he based his opinion mainly on the fact that there were many animals supposed to have been mad that were now alive and well, and had yet communicated the disease. In his paper he had expressly suggested that more free use should be made of the system of treatment of Rabies by agents acting on the excretory organs. They read of case after case of treatment in the human subject, where specifics had been resorted to without regard to the endeavour to remove the poisonous matter. As far as he could learn from *post-mortem* examination and the microscope, there was extravasation of blood in various parts, and the characteristic lesions of Rabies or Hydrophobia appeared to be the collection of white corpuscles round the sheaths of the minute bloodvessels.

The meeting was then adjourned. Present, thirteen Fellows, one visitor.

JAMES ROWE, *Hon. Sec.*

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

AT the ordinary meeting of this Society held on March 26th, Dr. GEORGE THIN read a paper "On the Condition of the Skin in Tinea Tonsurans," in which he gave an account of the appearances seen in sections through the entire thickness of the skin of a horse affected with Ringworm. The author alluded to the evidence on which the identity of the disease in that animal and in man has been established, and to cases in which the *Tricophyton tonsurans* has been transmitted from the former to the latter. The skin was examined in both the earlier and the advanced stages. The spores of the *Tricophyton tonsurans* are found amongst the most superficial scales of the horny layer of the epidermis. They are found in the cutis only, in the shaft of the hair, and between the shaft and the internal root-sheath. The spores in no instance were found in the root-sheaths, hair-root, or hair-papilla, nor in the connective tissue surrounding the hair-follicles—that is to say, the spores were never found in actual contact with living tissue, the space between the internal root-sheath and the hair-shaft being analogous to the most superficial stratum of the horny layer. The affected hair first bends, and then breaks at a point usually midway between the rete mucosum and the hair-root. This the author attributes to the disintegrated hair yielding to the pressure produced by the normal growth of the air-shaft upwards. The changes found in the tissues of the cutis and rete mucosum are sometimes extensive, and are similar to those found in inflammation, from whatever cause it arises. The spaces between the bundles of connective tissue are more or less infiltrated with colourless blood-corpuscles (pus-cells), the walls and immediate neighbourhood of the bloodvessels being thickly studded with them. Retrogressive changes are found in the nuclei of the cells of the rete mucosum; and at some parts the epidermis has completely broken down, leaving the cutis denuded. In the latter case the surface is found covered with pus-cells. Small localised abscesses are found in the internal root-sheath and in the rete mucosum. The cell infiltration descends along the veins to the deepest parts of the cutis. The author, finding these well-marked inflammatory effects in tissues

which contain no vegetable organism, suggests that they are due to irritation, which is produced by the absorption of soluble matter set free during the growth of the fungus. The parasite finds its pabulum amongst effete epidermic structures, and can only assimilate by decomposing them. This theory seems to be the only reasonable one, because the effects produced are far in excess of those which might be expected to follow the pressure attending the distortion of the hair. The incapacity on the part of the fungus to exist in living animal tissues, explains the *modus operandi* of the very numerous methods of curing Ringworm. Many of the substances applied are simple irritants, whilst the parasticides in common use are also irritants. Inflammation, when sufficiently acute, cures Ringworm, as is shown by the fact adduced by the author, in which a simple wound through a Ringworm spot cured the whole patch. It is thus that the beneficial effect, in chronic cases, of a continued slight congestion is explained. The author further pointed out the probable injurious effect on the general health of the continued absorption of the irritating matters produced by the growing fungus.

Dr. F. TAYLOR said that a few months ago he had the opportunity of removing after death a portion of the scalp of a child affected with Ringworm. The child had died of cerebellar tumour, and during the last few weeks of its life no treatment had been directed to cure the Ringworm. Dr. Taylor was still engaged in the microscopical examination of the skin, and so far as he had gone his results agreed with those of Dr. Thin; when completed, he proposed to communicate the details to the Society.

Mr. GASKOIN thought that the results of Dr. Thin's researches justified the prevalent methods of treatment, and especially the performance of epilation in Ringworm.

Dr. COUPLAND asked for analogous instances of the growth of fungi-producing materials capable of exciting inflammation.

The PRESIDENT referred to the fact, which he had observed, that Ringworm was more prevalent among the children of the better classes than among the poor, ill-fed, and destitute.

Dr. THIN could not offer any explanation of the fact. Certainly the disease was more common in London than in many places. It was not very prevalent in Continental towns. He thought that among the well-to-do classes it was more common in thin, pale-faced, fair-haired children. The fungus must assimilate and grow, and, just as in the process of fermentation and putrefaction, there must be some material set free by the growth of the fungus. Dr. Thin added that the best method to prepare the skin for microscopical purposes was, after hardening in alcohol, and making the sections, to place these in water and then in caustic potash. In that way there would be no risk of confounding the spores with the granules in the sebaceous glands.

On this subject, the *Lancet* of April 6th makes the following remarks:—

"The paper by Dr. Thin, read at the last meeting of the Royal Medical and Chirurgical Society, raised some interesting questions. Kaposi, speaking of the various forms of Ringworm, says that 'in these cutaneous affections, the parasitic nature of which is universally recognised, even when the affection lasts for years, and is accompanied by extreme inflammation with production of pustules and cicatrices, the elements of the fungi have never yet been seen to penetrate beyond the layers of epidermis into the papillary layers, into the corium, or into the lymphatics or bloodvessels;' and he thinks this constitutes a powerful objection against the phytogenetic pathology of the present day. A point at issue between Kuchenmeister (and we may now add Dr. Thin) and Kaposi, is that the former holds that the fungus only lives upon the effete and dead epidermal tissue, whilst the latter believes the

fungus to spread down among the epidermic cells which are still in active growth ; and, indeed, he gives a drawing showing this extension. He adds, however, that at present it is not precisely known what are the substances which the parasitic fungi take from the living tissues. Slight as the distinction appears to be, it is yet of primary importance. Indeed, upon it Dr. Thin has based his very reasonable hypothesis concerning the nutritive disorders set up by the growth of the fungus, as well as his explanation of the action of so-called parasticides in the treatment of Ringworm. Believing that the *Tricophyton* derives its nourishment solely from the effete material of the horny epiderm and its appendages, he supposes an antagonism between the fungus and living tissues, to such an extent that the products of living matter, serum, etc., will actually kill the fungus. The latter also reacts in a peculiar way upon the tissues themselves. In its growth upon the dead matter some products must be set free ; these in turn may act as irritants upon the surrounding skin, and set up the inflammatory changes so often seen associated with Ringworm, and the histology of which was carefully detailed in the paper. The action of local irritants is to produce similar inflammatory changes, and the exuded material destroys the fungus. It remains to be explained why, if this be true, the inflammation set up by the fungus itself does not lead to the destruction of the latter, and thus more often result in spontaneous cure. We may hope that these theories will receive due consideration, and be fully discussed. An opportunity for reviving them will be afforded when Dr. Taylor makes his promised communication. It is essential they should be well considered and discussed, for they have wide general bearings upon pathology, and especially upon the occurrence of inflammatory changes in wounds, etc.; which it is the object of the antiseptic treatment to prevent. Much light may yet be thrown upon such conditions attributed to the growth of organisms by the study of the effects produced by the comparatively grosser forms of vegetable life which are met with in Ringworm."

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of the above Society was held at the Queen's Hotel, Leeds, on Thursday, the 11th of April, the President, Mr. Fallding, in the chair. The following members were also present :—Messrs. Jas. Freeman, T. Greaves, J. S. Carter, Jno. Cuthbert, W. Edmundson, W. G. Schofield, Peter Walker, J. W. Anderton, Parlan Walker, J. M. Axe, R. W. Murdoch, D. Spillman, W. Lodge, G. W. Carter, and the Secretary.

Professor Axe, of the Royal Veterinary College, and Mr. Robertson, M.R.C.V.S., of Leeds, were present as visitors.

Apologies for non-attendance were received from Messrs. M. E. Naylor, Jno. Fryer, J. Bale, Jos. and Jno. Freeman, E. C. Dray, and J. E. Scriven.

The minutes of the previous meeting were read and confirmed.

Professor John Wortley Axe, of the Royal Veterinary College, London, was nominated for membership.

The PRESIDENT introduced the subject of the "Fleming Testimonial Fund"; after a few remarks from Professor Axe in praise of the great literary labours and unwearied zeal of Mr. Fleming to enhance the status of the profession, it was unanimously resolved to form a committee to assist in carrying out the objects of the Fund, the committee to consist of the President and Secretary, Messrs. Axe, Cuthbert, and W. G. Schofield.

The selection of a member for a seat in the Council, resulted in the election of Mr. James Freeman, of Hull, by a considerable majority of votes ; and the Secretary was instructed to carry out measures in order to secure

his election, in conjunction with the candidates selected by the Lancashire, Liverpool, and Midland Counties Associations.

Mr. T. GREAVES then read a very able and interesting paper on "Germs: the part they play in the Production of Disease"; also "Disinfectants: the part they play in the Prevention and Modifying of Disease." The subject was well delineated, and elicited much useful information.

Professor AXE said that, of all subjects occupying the minds of scientific men, the subject of germs and germ life were to the medical, as well as to all other scientific bodies, the most important at the present day. The first question to be asked is, "Do germs exist? if they do, what are they?" The idea that germs are existing facts, trembling on the border-land between living and non-living matter, must be accepted with very great care, and also with considerable doubt. The germs of disease cannot be recognised by the microscope; so that physically we cannot separate them. The fact of the existence of germs has been demonstrated by the virus of infection after being filtered through porcelain.

The Professor differed from the essayist respecting the similarity of Septikæmia and Pyæmia. Pyæmia arises from inflammatory actions taking place in the venous system, forming pus, which is carried into the circulation, afterwards forming abcesses. Septikæmia is dependent on the introduction of a separate and distinct abnormal matter from pus into the system of the animal.

Disinfectants.—Our first object is to know what action carbolic acid has upon the agents used along with it; as, for instance, oil and spirits diminish its disinfectant action. The next question is, Does the same agent act upon all germs alike? Certainly not. Internal disinfection is of great importance in infectious diseases, though the subject yet requires great ventilation. The utility of carbolic acid internally administered in cases of Eczema Epizoötica has been very great in the experience of the Professor.

Other gentlemen having made a few remarks, the discussion was brought to a close.

A cordial and unanimous vote of thanks was awarded to Mr. Greaves for his kindness in introducing the subject for discussion; a similar vote of thanks was accorded to Professor Axe for giving the members the result of his experience of the subject.

It was unanimously resolved to invite Professor Walley to read a paper for discussion at the July meeting.

WM. BROUGHTON, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of the above Association was held at the Blackfriars Hotel, on Wednesday, March 13th, 1878, Mr. Tedbar Hopkin, president, in the chair. The following gentlemen were present:—Messrs. Peter Taylor, Thos. Taylor, Thos. Greaves, Alex. Lawson, W. A. Taylor, M. J. Roberts, and E. Faulkner, of Manchester; Messrs. G. Heyes, R. Reynolds, and D. Hutcheon, of Liverpool; Cartwright, Whitchurch; J. A. Fallding and T. Briggs, of Bury; W. Dacre, Altrincham; W. Woods, Wigan; Darwell, Northwich; Brooks, Pilkington; T. S. Faulkner, Rochdale; Hart, Oldham; N. Fergusson, Warrington; Whittle, Worsley; T. Horrocks, veterinary student; and the Secretary.

Several letters of excuse were read by the Secretary; also one from Professor Walley, regretting his inability to attend the meeting in consequence of the approaching examinations; at the same time saying, "If you can arrange with the secretaries of the Liverpool and Midland Counties Associations,

I shall be pleased to read a paper on separate subjects to each about the middle of July." A vote of thanks was accorded Professor Walley for his kind offer, which was accepted.

The Secretary nominated Mr. Bernard Wood for election.

The TREASURER then read his report for the year 1877. He was pleased to say the Society was in a flourishing condition, as far as funds were concerned, he having in hand some £70 to £80; but, at the same time, he found the expenses lately had exceeded the income. To obviate this, Mr. Peter Taylor moved that at the next quarterly meeting he would propose that the annual subscription should be raised to £1, and also that a reporter should attend the meetings. After an animated discussion respecting the "Fleming Testimonial Fund," Mr. Woods, of Wigan, proposed that Messrs. P. Taylor, Tom Taylor, John Lawson, W. Dacre, the President, and Secretary, be formed into a committee of management, and the matter left entirely in their hands; seconded by Mr. W. A. Taylor, and carried unanimously. Mr. Alex. Lawson proposed that W. Whittle, Esq., of Worsley, be nominated as member of Council at the forthcoming election in May; seconded by Mr. P. Taylor, and carried. Mr. P. Taylor proposed Messrs. W. A. Taylor, E. Faulkner, A. Lawson, W. Dacre, President, and Secretary, as the electioneering committee; seconded by Mr. W. Woods, and carried.

Mr. THOS. TAYLOR then read the report of a microscopical examination of "Colloid Tumour," introduced at our last quarterly meeting by Mr. W. Dacre, the character of which produced a variety of opinions. Mr. Taylor said: "I am pleased to have the honour of recording a microscopical examination of the above tumour. From the extreme kindness of Dr. Droschfeld and Mr. Priestly, of Owen's College, Manchester, I am not only able to give you a report, but also to show you sections of the same under the microscope. I must own to you that the study of this instrument has, with me, been but limited; but I trust that in bringing forward this, I may say the first attempt of introducing the microscope at our meetings, it will not be the last, and that younger heads than mine, and members who have more time on their hands, may make use of this valuable instrument.

"Abdominal tumour"—small-celled sarcoma, probably lympho-sarcoma. Near the central parts of the nodules, the lymphoid cells of the tumour have undergone colloid degeneration, and disappeared.

Mr. Taylor also related a very interesting case of "Tumour in the left ventricle of the brain." The subject was a bay carriage-horse, twelve years old, brought to Grosvenor Street on Friday afternoon, Feb. 8th, 1878. The coachman in charge of the animal said, that for three or four days he had not taken his food at all well, and was very excited both when in and out of the stable, but the man did not think very much about it, as the animal had for a considerable time shown great nervousness when being driven in harness; more particularly so when his feet came on to the stones from off the macadamised road, or stepped into water—the horse at once becoming very nervous and bad to manage. The present owner had had the horse for six years, and the present coachman had driven it four years: and the excited appearance commenced about ten months ago. I found the pulse 60, and irritable: on the slightest noise being made he instantly became excited, but soon settled down again. The iris answered distinctly to the light, and with the exception of the visible mucous membranes being somewhat congested, no other symptoms were present. On having him brought out of the loose-box (in which he was standing on sawdust), the moment his feet touched the stones he was excited, and a quick tetanic spasm appeared at once to be produced. I allowed him to stand there a few moments, and when he had become composed, he would at intervals snap and bite at imaginary objects. When led on again, the same nervous tremour would appear, but when

allowed to rest soon passed off, and his locomotive powers became perfect. I had him gently walked and trotted, and he appeared to go all right. On taking him back into his box, the same symptoms presented themselves—the excited manner, the nervous tremour, the snapping and biting. I had his shoes taken off, but with the same result. I own I was at a loss to say what my case might turn out to be. I knew full well I had a brain affection to deal with; but the snapping I did not at all like, and dreaded Hydrophobia, although the history of the case was such that I could not bring my mind to think so, especially as the coachman said the horse had never been bitten by a dog. I gave him ten drachms of Barb. aloes in solution, and applied cold application to head, cold bran tea, and kept him very quiet in a roomy loose-box. A glyster was given, and he voided some soft fæces. Saturday morning found my patient still in the same condition; he drank his bran tea, but his bowels were not acting. We continued the treatment, but he gradually got worse. On Sunday morning he got down, and was unable to rise. We tried all we could, but when raised, he had not the power to stand. The excitement increased: if you only even clapped your hands or shouted, the paroxysms increased in intensity, as also the snapping and biting. This continued until Monday evening, when the animal died. The *post-mortem* examination disclosed a beautiful tumour in the left ventricle of the brain, which I have the pleasure of showing you, also microscopical sections of the same, for the latter portion of which I am indebted to Dr. Droschfeld and Mr. Priestly of Owen College, who very kindly prepared them, also giving me report of the tumour. It seems it is of a very rare class, and received the name of "psammomum," is situated in choroid plexus in left ventricle of the brain, is pear-shaped, and broad end forward. Size, 1⅞ths in. long and ⅞ths in. broad at broadest part; weight, nine grammes. Composed of calcareous nodules, deposited in the vascular loops of choroid plexus, and round them nucleated laminæ form. The rest of the tumour is composed of connective tissue; here and there degenerated blood pigment hæmatoidin is to be seen in granules. Mr. Taylor exhibited all three specimens under the microscope—which was very interesting and instructive, enabling the members to more easily understand the nature of the morbid specimens referred to.

The PRESIDENT then read a short paper on the "Antiseptic Treatment of Glanders," but the evening being so far advanced, the discussion was limited. At some future time, however, this most important subject will be brought forward for further consideration.

A vote of thanks to Mr. Taylor for his communication, and the trouble he had taken in obtaining the physiological history and sections of the "colloid tumour" and "cerebral tumour," was proposed by Mr. E. FAULKNER and warmly seconded by Mr. W. DACRE, and carried unanimously.

A vote of thanks was accorded Dr. Droschfeld and Mr. Priestly for their kindness in assisting Mr. Taylor.

A vote of thanks to the President closed the proceedings.

SAM. LOCKE, *Hon. Sec.*

EXAMINATIONS OF THE MONTREAL VETERINARY COLLEGE.

THE annual examinations of this College were concluded on March 28th inst. The examinations in French were conducted by Professors D'Orsennens and Bibaud, of Laval University, and Couture and Bruneau, lecturers of the Veterinary College. The English written examinations were conducted by Professors Dawson, Craik and Osler, of McGill University, and McEachran, Bruneau and Lyford, of the Veterinary College; the final oral tests by the following board appointed by the Council of Agriculture:—Alex. Waddell,

M.R.C.V.S., Quebec ; Williamson Bryden, V.S., Boston, Mass. ; Charles Levesque, V.S., Berthier *en haut* ; Arch. McCormack, V.S., Beauharnois ; Dr. Geo. Leclerc and C. J. Alloway, V.S., Montreal.

The following French-Canadian students were successful in passing *Botany*, by Professor Brosseau :—H. Audrain, Montreal ; H. C. D'Aubigny, H. Bergerin, Beauharnois ; J. Page, Lotbiniere ; H. Jollicœur, Montreal.

Chemistry, by Professor D'Orsennens.—H. Audrain, A. Levesque, H. Bergerin and H. C. D'Aubigny.

Physiology, by Professor Bibaud.—H. Audrain, A. Levesque, H. Bergerin, and H. C. D'Aubigny.

IN THE ENGLISH DEPARTMENT.

Botany, by Professor Dawson.—Noah Cressy, M.D., Amherst, Mass., U.S. ; George Parkinson, Bridgeport, Conn., U.S. ; William Jakeman, Boston, Mass. ; Matthias S. Brown, Montreal ; P. Cummins, Quebec ; E. White, Montreal ; Alex. Harris, Ottawa.

Chemistry, by Professor Craik.—Noah Cressy, M.D., J. J. Miles, Charleston, Ill., U.S. ; Daniel Lemay, Bord-a-Plouff, P.Q. ; H. J. McMartin, Montreal ; Charles Winslow, Rockland, Mass., U.S.

Physiology, by Professor W. Osler.—Noah Cressy, M.D., J. J. Miles, D. Lemay, H. J. McMartin.

Materia Medica, by Professor Bruneau.—Noah Cressy, M.D., J. J. Miles.

The following prizes were awarded :—For the best general examination on all subjects—first, F. W. McLellan, silver medal, the gift of the Council of Agriculture ; second—Noah Cressy, M.D., urinometer and clinical thermometer. In the junior class—first, J. J. Miles ; second, D. Lemay. A special prize of a clinical thermometer was awarded to Mr. F. W. McLellan for proficiency in practical anatomy. The diplomas of the College were conferred on Fred. W. McLellan, Bridgeport, Conn., U.S., and Noah Cressy, M.D., Amherst, Mass., U.S.

The following were present :—Professors Craik and Osler, of McGill University, and McEachran, Bruneau, Couture and Lyford, of the Veterinary College. Letters of apology were received from Professor Dawson, L. H. Massue, Esq.. President of the Council of Agriculture, J. M. Browning, Esq., and others, regretting their inability to be present.

Obituary.

WE have to record the death, on March 24th, at the ripe age of eighty-two years, of Charles Taylor, M.R.C.V.S., late of Nottingham. Mr. Taylor graduated so long ago as 1815, and had retired from the profession for a number of years. He had held the office of Vice-President of the Royal College.

Notes and News.

VETERINARY HONOURS.—It gives us much pleasure to announce that Veterinary-Surgeon Adams, of Augsburg, Bavaria—for many years editor of the *Wochenschrift für Thierheilkunde und Viehzucht*, the only weekly veterinary periodical in Europe—has been decorated with the cross of the first class of the Order of Merit of Saint-Michael. Professor Gille, of the Brussels Veterinary School, is nominated a Knight of the Order of Isabella the Catholic.

Professor Lafosse has been appointed Director of the Toulouse Veterinary School, on the retirement of Lavocat, who has held that important office since 1866.

VETERINARY CONGRESS AT PARIS.—During the forthcoming Universal Exhibition, a Congress of French Veterinary Societies and practitioners is to be held at Paris, when the following questions will be discussed :—1. The proper means to ameliorate the position of civil veterinary surgeons in France ; 2. The best means of organizing the Veterinary Sanitary Service, and ensuring its efficiency ; 3. The *rôle* which veterinary surgeons should assume in the inspection of fairs, markets, and knackeries, as well as in judging at exhibitions and in valuation commissions ; 4. The conditions of admission to the veterinary schools, and the modifications which the instruction in these should undergo ; 5. The veterinary associations in France ; 6. Legislation with regard to unsoundness of animals and contagious diseases. It has been decided that this first French Congress shall be national, in order that attention may be exclusively concentrated on the professional interests of veterinary surgeons in France.

HYDROPHOBIA AND SKUNK BITE.—That portion of Dr. Elliott Coues's very interesting book, "The Fur-bearing Animals of the United States," which relates to madness following the bite of the skunk, has excited much attention. Though it has long been known that the bite of the skunk under certain conditions, like that of various other animals, is capable of inoculating a disease like Hydrophobia, it seems that only lately has the subject been thoroughly investigated and adequately presented. This has been done, notably, by two writers—the Rev. Mr. Hovey and Dr. Janeway—whose respective accounts are transcribed by Dr. Coues in full, preceded by a brief statement, which we quote :—"The points that Mr. Hovey makes are these : That Hydrophobia from skunk bite is a different species of the disease from Rabies Canina—the term Rabies Mephitica being proposed for it ; that Rabies Mephitica is caused by a special hydrophobic virus generated by skunks ; that possibly there may be a causative connection between inactivity of the anal glands and the generation of malignant virus in the glands of the mouth ; that the bite of skunks, in apparently normal state of health (*i.e.*, not rabid in the usual view of the term), is usually fatal ; that we might go further, and seek a solution of the whole dread mystery of Hydrophobia, in the theory that this terrible malady originates with the allied genera of Mephitis, Pectorius, and Mustela, being from them transmitted to the Felidæ and Canidæ, and other families of animals. He also suggests that the mephitic secretion might be found to be the natural antidote to the salivary virus. Some months afterwards Dr. Janeway replied in an elaborate article, detailing cures, and criticising Mr. Hovey's views, coming to the conclusion that the malady produced by mephitic virus is simply Hydrophobia. —*Forest and Stream.*

THE POISON OF THE TOAD.—The Brussels Veterinary Journal states, on the authority of M. Jacques, Government Veterinary Surgeon at Spa, that a dog, while walking with its owner in the forest of Sauvenière, caught a large toad in its mouth and bit it several times. The animal soon after began to show symptoms similar to those due to viper bite. After the administration of ipecacuanha syrup, the dog vomited, and then lay as if deprived of life until next day. Seeing that it was yet alive, its master gave it the whites of two eggs, and it slowly regained consciousness, finally recovering completely towards evening.

THE ARMY VETERINARY DEPARTMENT IN INDIA.—The Indian *Civil and Military Gazette* makes the following remarks on the Veterinary Department of the Indian army, which we commend to the notice of those

who may think of entering the service :—"We hear from home that, owing to the total absence of candidates for veterinary appointments, the Artillery cannot complete its establishments. We also hear that the thirteen senior veterinary surgeons on the home establishment have refused promotion, in order to avoid Indian service. There must be something radically wrong in the management of the Department to have brought about this state of affairs. The best men, we know, have for some time avoided the service; but now it would appear that men of any description cannot be induced to present themselves. There are several appointments existing in India which senior veterinary surgeons could fill with benefit to the service; and unless some inducement of this nature is held out for good men to leave home, we fear the Department in India will be but questionably represented. The Department is numerically weak, and its complaints are consequently smothered; and there is no one at the head of affairs in India who shows any disposition to remedy the causes which have brought about the veterinary surgeon's distaste for Indian service, or for the service generally."

In a more recent issue the same journal continues these well-founded complaints :—"There is one important department of the military service in India to which justice is not being done—viz., the Veterinary Department. There is no encouragement given to senior and experienced officers to come to India. There are, by the Army List, 42 first-class veterinary surgeons, out of which number only 7 are serving in India ; and there are 73 veterinary surgeons, out of which 47 are serving in India. India should have 22 first-class veterinary surgeons as its proper proportion—instead of which all the youngest men in the service are sent to this country to gain their experience instead of bringing experience with them. The fact is, that Indian service is detested by home men because they find themselves snubbed and ousted from appointments which properly belong to them. When Veterinary Surgeon Thacker died, the post of Remount Agent was given to a combatant officer with double the staff salary which Mr. Thacker used to draw ; yet the valuable services of the latter were unquestionable. This appointment was taken away from the Veterinary Department without any apparent reason ; and the head appointments at the Remount Depôts, which might be given to senior veterinary surgeons, are still withheld from them. Until some steps are taken to remedy the present state of things, discontent will continue, the status of the veterinary profession will suffer, and the Government will fail to get the benefit of the experience and skill which it ought to secure from England."

Bogus Diplomas.—Our readers will perhaps remember that a notorious vendor of "bogus" diplomas in America, named McClure, was recently convicted of fraud for dealing in these spurious wares, and sentenced at Philadelphia to nine months' imprisonment, in addition to a fine of $200. This sentence was jeopardised by a writ of error, but it has now been confirmed by the Supreme Court, and the diploma-monger receives his well-deserved punishment.

Hydrophobia.—In consequence of four deaths from Hydrophobia in mid-Cheshire since the beginning of January, the magistrates of the Leftwich petty sessional division have issued a prohibition against dogs being at large, unless muzzled or under proper control. Recently, Captain Edward Parke Yates, the popular master of the Cheshire foxhounds, was summoned for allowing the hounds to be at large. It was proved they were unmuzzled, but under the immediate control of a huntsman and two whips. The magistrates, who stated that the order applied to homeless curs only, dismissed the case.

Correspondence, etc.

CONTAGIOUS PLEURO-PNEUMONIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—In your last month's issue, from the report of the Lancashire Veterinary Medical Association, during the discussion of the duties, etc., of veterinary inspectors, Mr. Hill, of Wolverhampton, made the following remarks: "A cow was slaughtered, and afterwards the surgeon found a piece of wire protruding into the diaphragm, which no doubt had been there a long time, as there was no inflammation. The person, on finding the wire, said he (the speaker) had erred in his opinion, and he was told he would have to pay for the cow. The lungs were taken to another veterinary surgeon, who confirmed his opinion; but the gentleman he had mentioned would not give way, and the end of it was he had to pay £25 as damages for the cow, which belonged to the Corporation." Each of these remarks I positively deny. Mr. Hill first pronounced the disease "Pleuro"; I made the same mistake, and had the beast slaughtered. The following morning Mr. Hill wished me to report it as "Pleuro," after seeing the lungs—he still maintaining there were symptoms of the disease. So, to settle the question, the lungs were examined by a third veterinary surgeon; and upon his deciding there were no symptoms whatever, I declined reporting it as such. The case was taken in hand by our town clerk on behalf of the Corporation, and the county paid to the Corporation compensation to the amount of £7 10*s.*, in addition to what the carcase realised to the butcher. You will see from the above: First, I did not tell Mr. Hill he had erred, or that he would have to pay; secondly, the veterinary surgeon who examined the lungs did not confirm his opinion, but mine; thirdly, that he did not pay £25 as damages, but the county did £7 10*s.*

I am, yours truly,

E. BEDDARD, M.R.C.V.S.

Wolverhampton.

TYPHOID FEVER AT EAGLEY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the course of the presidential address to the members of the Lancashire Veterinary Association, given at Manchester on Feb. 8th, and reported in the March number of the *Veterinary Journal*, we observe an allusion to the Eagley Typhoid Epidemic in 1876. We feel astonished that a gentleman in the social position of Mr. Hopkin should allow himself to use, as authoritative, the *ex-parte* reports of any newspaper he may happen to take up, notwithstanding the fact that the statement receives no official confirmation. This he appears to have done in the present instance, totally ignoring the medical report to the Local Board of Health on the subject—a copy of which he might, and ought, in common fairness, to have obtained before making such disparaging remarks upon the medical profession collectively, and, by inference, upon the medical men engaged in the case in particular. The cause of the outbreak was never attributed to the action of acid milk upon the metal of the cans. The nature of the disease was correctly diagnosed from the first, and nothing then remained but the elucidation of the cause. In the course of investigation a particular farm was visited, from which all the patients were supplied with milk. The dairy utensils and

milk-cans were found to be in a filthy state—the latter smelling quite sour ; and between the joinings of the metal there existed a large interspace, which was quite full of what we might call lactate of lead, formed by the action of acid milk upon the solder. It was then considered if this could have any *influence* upon the course of the disease, when the fact was seized upon by some over-zealous reporter, whose fertile and imaginative brain produced the report in question. Our attention was drawn to it at the time, but being so much engaged, and the paragraph not being considered of great importance, it was passed over in silence.

In the discussion following the address, Mr. T. Greaves, of Manchester, in the course of a speech abounding in patronising eulogiums, and exhibiting a large amount of pardonable pride, exalted himself, and his friend Mr. T. Taylor, on a pinnacle of fame, as the discoverers of the Eagley milk-poisoning case, to borrow his own expression. Now, this is very selfish on the part of Mr. Greaves. Had he shown a little more modesty, and at least accorded to us some little share of the honour, we might not have been tempted to interfere and assert our right to the whole, but rather would have rested contentedly thankful with the portion which he, in generosity, might have granted. Under the circumstances, we are exceedingly sorry to be obliged to interpose and destroy the pleasing delusion under which he seems to be labouring ; but he appears to be so completely misinformed as to the true facts and circumstances of the whole affair, that we feel it a duty to the medical profession generally to supply *him* with a correct version, and to remove the erroneous impression his remarks must have given to the public at large. This we will endeavour to do in the most friendly spirit, and in the least unpleasant way possible, assuring him at the same time that we are actuated by no feelings of animosity towards him, nor do we desire to introduce personalities. We feel that he is simply labouring under a misapprehension of the true facts, and, if we mistake not, will be only too glad to be corrected, and will readily accept a proper and unbiassed version.

The date of the commencement of the outbreak was on Feb. 2nd, 1876, when sixteen persons, all of them being children, were brought under observation, presenting evidences of commencing Enteric Fever—the symptoms being so violent as to warrant the supposition of the inception of some powerful and irritating septic matter, other than the poison usually productive of Enteric Fever. On the two following days there were 131 other cases, presenting similar symptoms. All these cases occurring in the same vicinity, it was evident that the root of the mischief lay in some article of food used in common by all of them. The report of the medical officer contains the following passages :—

"Attention, then, being directed to the food, from inquiry made by myself and my son, we found that milk from the same dairy had formed part of the diet in all instances. Directing now our sole attention to the milk, we discovered that for some time it had been noticed to be unpalatable, and to give off a peculiarly unpleasant odour ; and our suspicions were further aroused on being summoned to the farm in question to attend two cases, which were found to be identical in symptoms with the others under my care. Upon entering the shippon we discovered one of the animals to be in a very questionable condition, suffering from the effects of an accident during calving. Inquiries were made as to the quality of the milk obtained from this cow—as, from the symptoms manifested, thoughts were entertained that the milk might be diseased, as occurs in the human female under similar circumstances. Upon this supposition it was directed that a sample of this milk should be submitted to me for examination. I examined this specimen, together with one obtained the day before from a patient under my care, and found both specimens to be very poor in quality, and of a peculiar *green*

colour, and possessing a very unpleasant smell and taste. My son drank a small quantity, and, as a consequence, felt slightly unwell for some days. . . . . On Saturday, Feb. 5th, I and my son paid a visit to the farm, and, with Mrs. K——'s brother-in-law, made a thorough examination of the cows, and also of the dairy and its utensils. We found the Eagley milk-can in a filthy state, which, of itself, would render any milk conveyed in it impure. We all examined the milk from the unhealthy cow, which had been preserved from the last night's milking, and found it in the same abnormal condition before mentioned. Mr. K—— tasted some of this milk, and immediately ejected it, remarking that it was very bad, and that he should not like to drink it himself.

"On the next day (Sunday) Mr. Molyneaux, veterinary surgeon, examined the cow in my presence, and declared it to be healthy and the milk good. Differing from him, I thought it most satisfactory to obtain the assistance of other veterinarians. I consulted with your Chairman, and he deemed it advisable to obtain the opinion of Messrs. Taylor, Greaves, and Locke, of Manchester. Notwithstanding the fact that they endorse Mr. Molyneaux's opinion, I feel convinced that an animal in the condition in which I *first* saw this particular one, must necessarily secrete milk which would be unfit for food; and as the symptoms observed in the persons affected were abnormal, I think I am justified in attributing the deviation to the effect of this particular milk. The reason of the diversity of opinion betwixt myself and the gentlemen above mentioned, is, I think, due to the very much improved condition in the cow's health at the time of their examination. . . . . *In the meantime* I had diverted my attention to the water supply of the Hardman's farm; and upon inspection I found that its main dependence was upon water obtained from a small stream running close past the house, this being collected in a tub near the dairy door. I ascertained that, while all water for domestic purposes was fetched, when required, from a pump situated behind H—— Houses, T——, that for dairy and general purposes was procured from this tub. . . . . I traced the stream before alluded to as far as the new mill now building at C—— G——, by Messrs. G——, and found there a most abominable state of affairs. The workmen employed in its erection not having been supplied with proper petty conveniences, they are compelled to make use of a field through which the stream flows; in the bed and on the banks of which I found large quantities of fœcal matter. This has so polluted the water as to render it totally unfit for any domestic purposes. . . . . The conclusions to be drawn from a *résumé* of the foregoing facts are: first, that the milk from Mrs. K——'s farm was the *vehicle* in which the fever poison was conveyed to all the individuals attacked; and, secondly, that the poison was introduced into the milk, either by the adulteration of it with water containing fœcal matter, or the germs of Enteric Fever, or by washing the dairy utensils and milk-cans in water contaminated in like manner. . . . . I may also add my own opinion that milk secreted by a cow in such a condition as the one I have before mentioned, cannot be fit for human consumption; and, as I before stated, I consider that the milk from the animal I examined at Mrs. K——'s farm has had a *modifying* influence upon those persons attacked by this terrible fever, and caused the peculiarities observed in the symptoms presented by those afflicted."

On the 5th of February, when it was without doubt proved that the real cause of the fever was conveyed in the milk, directions were given for the supply to be immediately stopped—which injunction was rendered superfluous by the action of the people themselves, who, when the milk was *only suspected*, refused to receive any more. This entirely destroys the assertion of Mr. Greaves, that *they* first directed the discontinuance of the supply. We may here direct attention to the following important facts: That the milk from

the diseased cow had not been *mixed* with the general supply until about the time of the appearance of the fever; that when the cow was first seen by us it was in a wretched condition, there being a considerable discharge of bloody pus from the vulva—a large pool lying at its heels; and that the veterinary surgeon's examination took place on the 9th of February, six days after our first inspection, when the condition of the animal had so much improved as to cause considerable surprise—even so much so as to raise a suspicion that it had been destroyed and another one substituted in its place. Bearing these facts in mind, together with the peculiarity of the symptoms the fever presented: its being more virulent in proportion to the youth of the patients; that some persons, either from a previous attack or insusceptibility to the poison, who had partaken of milk from this farm in question, were free from the fever, but presented symptoms of simple disorder of the digestive organs, as evidenced by Colic followed by Diarrhœa, etc.; and that these violent symptoms only presented themselves at the particular time when the diseased milk was mixed with the general contaminated supply,—we think we are perfectly justified in concluding that it exerted a very powerful influence, and to it alone were due the anomalous symptoms. To prevent confusion of ideas, we would particularly impress upon you the necessity of realising the proper meaning of the two expressions, contaminated and diseased milk,—the true fever germs not being presented in the latter, but it having simply a modifying influence upon the disease.

Reverting now to Mr. Greaves' speech, we will content ourselves by simply replying to each statement as it presents itself. The greater part of his assertions are answered and refuted in the preceding portion of this letter; but there remain a few remarks we should like to notice particularly. In the first place, there is the following: "They told the surgeon it was not the milk from the cow that caused the disease, and, as a proof, added, 'If it is the milk from this cow, how is it that, although the cow has been giving milk six weeks, there has not been a poisoning case until a week ago?' The surgeon replied the cow had never given any milk until then!" Now, the surgeon in question, having been accustomed to cows all his life, the remark attributed to him could not have been made, and is absurd, and could only be reconciled by the suggestion that Mr. Greaves mistook the expression used, which really was, "The milk had not been mixed with the other until then," or something equivalent to it, conveying the same meaning.

Next he says, "They advised the chairman to stop the delivery of this milk,"—which was superfluous advice, as the connection with the farm had already been severed, and the order had gone forth a long time previous to the visit of Messrs. Greaves, Taylor, and Locke, or the consequences would indeed have been serious.

As an answer to the concluding portion of his remarks, in which he retires in a blaze of light, we would simply inform him that Enteric Fever has a period of incubation varying from one or two to twelve days or more, and therefore, when he says the disease was checked from the moment his interdict went forth, it is rather an attempt to subvert the laws of nature to his own ideas and wishes. Cases did occur afterwards, and up to April 1st, but only in those in which the poison had been latent until that time.

On reviewing the foregoing plain and unvarnished statement of facts, it must be conceded that we have been successful in refuting the allegations of Mr. Greaves, and in correcting the misapprehensions under which he labours, and have at the same time established our undoubted claim to the honour—if any there be—of the discovery of the "Eagley milk-poisoning case." In conclusion, we would offer a suggestion in similar words to those used by Mr. Greaves. "If veterinary and human medical officers *would* keep their proper places, it *would* be better for the community at large,"—as we were

certainly under the impression that the veterinary surgeons were simply called in to report on the state of the health of a particular cow ; and we did not understand that they were to undertake the investigation of the cause of a particular disease of the nature of which they are necessarily ignorant, and which had been already effected to the satisfaction of every one concerned.

We are yours, etc.,

JOHN ROBINSON, M.R.C.S.E., etc., Med. Officer of Health,
JAMES ROBINSON, L.R.C.P.E., etc., etc.

Dunscar, *April 8th*, 1878.

SPURIOUS TITLES AND AGRICULTURAL SOCIETIES.

To the Editor of the VETERINARY JOURNAL.

SIR,—Kindly permit me, once more, to trouble you with a few remarks in reply to Mr. Gerrard's letter in your last impression. If certain portions of my former communication, which appeared in the *Veterinary Journal* for February, are now repeated, it is only in order to lay more emphasis upon them.

I beg again to submit, that no veterinary surgeon has a right to invent institutions which do not exist ; that he cannot say he is a member of the Royal College of Veterinary Surgeons of London or Edinburgh, when there is only one Royal College of Veterinary Surgeons for Great Britain and Ireland ; that he cannot from caprice, or at the dictates of his imagination, append a string of letters to his name to which he has no real claim, without committing an absurdity ; and that, worse than all, in so doing he is pursuing a practice tending to perpetuate that *hurtful disunion* which has been the great stumbling-block to the progress of the profession.

In my letter I made no comparison between the social status of veterinary surgeons north and south of the Tweed, nor did I intend in any way to rouse national susceptibilities. I took no such narrow-minded view, when I deprecated what I consider the very damaging and ill-advised interference of the Highland Society. If it were English, Irish, or Welsh, I should speak of it just the same ; and I am obliged, after reading all Mr. Gerrard's arguments, to repeat the opinion—which I hold in common with the great majority of veterinary surgeons—that it would be in every way better for our professional education and progress, if the Society would now cease, except as an auxiliary, its connection with us.

Having myself studied at Professor Dick's College, and having also acted as an examiner on the Veterinary Board, I submit that I cannot be regarded as prejudiced against the Society ; on the contrary, those who know my connection with it also know that I have good reason to regard it, as I do, with grateful affection ; yet duty constrains me to protest against its present unfortunate attitude in our professional affairs.

Can there be any foundation for the rumour that a member of the Society not long ago stated that it (the Society) does not want well-educated veterinary surgeons, as that would mean charges such as Scottish farmers could not afford? It is difficult to conceive that any responsible member of the Society could have been so unwise as to enunciate such a sentiment. If carried into practice, it would be hostile and ruinous to all professional improvement, and would perpetuate a state of ignorance now happily passing away, but which has been fraught with disastrous results to those interested in our domesticated animals. Be it well understood that I am now speaking, not of Scotland alone, but of veterinary education generally, as it has been until the last few years, conducted in Great Britain.

They must be very short-sighted who cannot perceive that well-educated and trained intelligence is necessary to give rational and trustworthy advice for the prevention and treatment of disease, and that, in the end, it is far the cheapest to those who are wise enough to seek its assistance.

It would gratify very many veterinary surgeons to learn, on good authority, that no responsible member of the Society holds such a deplorable opinion as that embodied in the rumour above mentioned.

Every day the importance of veterinary science is becoming more recognised, and it is only by *miserable jealousies and disunion in its own ranks* that its increasing influence can be retarded. It is a great and indispensable aid to agriculture; but is also something far more, and when properly developed, will be worthy to take high ground whence its view may be as wide-ranging as that of any other branch of learning.

While, therefore, we should, and do, gladly welcome any well-considered and beneficial aid from the various agricultural societies, yet no injurious or *reactionary* interference should be permitted. It must always be remembered that agricultural societies have the greatest inducements to foster and encourage veterinary science. Yet what do we see? Of course I am now speaking more particularly of the leading societies of the three kingdoms—which have shown, and still show, in this respect, a parsimony which is indeed poor and lamentable economy. That they should do so is remarkable, when we look at the vast interests involved. Consider the position and pretensions of the Royal Agricultural Society of England, of the Highland Society of Scotland, of the Royal Agricultural Society of Ireland; and it will be seen how remiss they are. Signs have lately appeared that the two former have begun to recognise their shortcomings, but it would seem as if only in a half-hearted and perfunctory manner. As to the minor societies, I am not aware that they show any interest in the question, except to be sometimes exceedingly free with advice and criticism—things people generally offer with great liberality, because they cost them nothing. Irrespective of obvious duty, self-interest alone might prompt all of them to adopt a more enlightened policy.

It would be a ruinous and fatal mistake to attempt to split a small profession like ours into *rival national factions*. To pursue such a course would be extravagant and *suicidal* folly. Let all rather work to bring about concord, and remember how much wisdom is concentrated in our motto, "Vis unita fortior." Divided, the profession will painfully strive, and make little progress; united, it will find the path smooth and the ball at its feet.

Your obedient servant,

JAMES LAMBERT, F.R.C.V.S.,
17th Lancers.

Leeds Barracks, *April 13th*, 1878.

"QUACKERY."

To the Editor of the VETERINARY JOURNAL.

SIR,—As a French veterinary student, who hopes to obtain the diploma of Veterinary Surgeon shortly, I have read with interest a correspondence carried on in your excellent journal on the subject of what you call *Quackery*, and we *Empirisme*. I should not have dared to offer any opinion of mine on so important a matter, because I do not as yet hold a diploma, but I notice that by Mr. Parlan Walker's letter, as well as from conversations I have had with English veterinary surgeons on the subject, an idea prevails

generally among English practitioners that out of England, and in France particularly, our calling is in some way protected by law from *quack doctors*. So far as France is concerned, I can only say this idea is incorrect. Not only is the *empirique* allowed to practise, but he does so,—nearly every blacksmith in the country being only too ready to give either his advice or his surgical or medical aid. Again, we have what I do not remember ever having seen in England—a *hypo-empirical* type, well known at sight to the students. He generally presents himself at the daily free clinic of our schools, in company with a peasant who has a sick horse, and acts nominally as a sort of *chaperon* to explain the nature of the disease, but in reality to be able, if he has the chance, of seeing how operations are performed and what medicines are given. This type is known as the *malin du village*. His advice is often preferred—especially if ridiculous—to that of the veterinary surgeon. Sometimes he is, however, a shrewd, practical rascal, and a horse-coper, or *maquignon*. A much more dangerous man for the unfortunate patients and their thick-headed owners, is the intelligent town chemist and druggist, who, having passed an examination in the use and quantities of drugs as employed by doctors in human diseases, considers himself well able to treat the maladies of the lower animals. The result, as you may easily imagine, is always most disastrous—especially to dogs, which are usually the unhappy objects of his heroic style of treatment.

Apart from these regular quacks, there are in most parts of France amateurs and agriculturists, who treat their own animals, and are often considered to be great authorities on disease, etc.

Then the veterinary surgeon of this country rarely or ever castrates any of the domestic animals, except the horse ; the operation being nearly always performed by agriculturists, empirics, and shepherds, or, when near the three veterinary schools, by the students. Any one who knows Paris must be familiar with the many street cries, and among them that of the ambulatory practitioner, who is to be seen any day, his stately head covered by a glazed hat (like that of the waterman of the London cab-stand), and the said hat ornamented by allegorical illustrations of his painful craft. As he proceeds, he cries, with a solemn air, "*Tond les chiens, coupe les chats*" (Dogs clipped, cats castrated), and then, in a softer voice, he adds, "*at every age*"—evidently to calm any fear of after-consequences that may lurk in the cat-loving mind of the Parisian housewife.

We have our empirics in as great number as you have. I only know of one instance of a quack having taken the titular rank of veterinary surgeon. He was prosecuted for doing so by a veterinary surgeon—the latter being a man who, owing to his incapacity, had plenty of spare time on his hands. If I remember aright, the jury let the empiric off on his promising not to write Veterinary Surgeon (*Médecin Vétérinaire*) after his name any more. The fact is, in France any one may practise the veterinary art, as long as he does not call himself *Médecin Vétérinaire* (or Veterinary Surgeon). Of course, an empiric cannot be employed as an expert in a court of law, nor even can a veterinary surgeon holding a foreign diploma be so employed; although the latter, if his diploma be a good one, such as that of Great Britain, by passing an examination in which he is principally examined in jurisprudence, so as to ensure a knowledge of the law on redhibitory diseases, etc., can easily obtain the same rights as a French practitioner. To my knowledge, there are at present in Paris two Englishmen practising as veterinary surgeons—one a member of the Highland Society, the other of the Royal College of Veterinary Surgeons. Neither have become members of our National Veterinary Schools, and, therefore, they cannot appear in the law courts. I suppose. however, they do not find it necessary. One has practised for many years in Paris ; whilst the other—the M.R.C.V.S.

—being a blacksmith, probably does not think it worth his while to do so, he having, I believe, succeeded to an excellent business in the latter trade.

The thing that seems strange to me—if I am not presumptuous in expressing an opinion as an outsider—is, Why in England does the empiric cause so much annoyance, and why in France do we take so little notice or trouble about the parasite? Indeed, with us it is a sure sign of a veterinary surgeon either being incapable or idle, when he troubles himself either about quacks or about men holding diplomas and keeping blacksmiths' shops. The former is left to his own sweet will, and the latter considered to know his own interests better than others can teach him. *Chaque pays ses habitudes.*

Here we find, though undoubtedly there are many amateurs—such as private gentlemen, landed proprietors, cavalry officers, etc.—who are really very capable in treating sick animals, and often have an extraordinary knowledge of exterior hygiene and the general management of the lower animals, that they are generally glad, in any serious case, to call in even a young veterinary surgeon, and ask his opinion, although they do not always follow his advice; whilst in all surgical cases they admit that even the youngster who has just left the schools, and often a fourth-year student, will perform any operation in a scientific and practical manner. We of the profession, on the other hand, have the vanity to suppose, after four years' hard work, two of which we pass in the hospitals performing all the functions of dressers, and doing many of the minor operations, operating daily on the dead foot, shoeing, and twenty-eight times in the scholastic year performing the important operations, that at least, on getting our diplomas, we are practically equal, if not superior, to any empiric. This, coupled with the difficult and severe course of instruction (of the most compulsory nature) in exterior in every sense, generally starts the young practitioner in this country well armed against horse-copers and dishonest dealers, etc. We further, of course, know that there are very few persons who practise veterinary medicine in France without a diploma, that have any scientific knowledge of their business; and, without boasting, I think if the modern French veterinary surgeon has not this, it is his own fault. He must have a very bad memory, as every branch of study is taught us—as much, in fact, as the medical student. As I suppose the course of study in England must be similar to ours, and I know that the medical one, in the two countries, is the same, it has always surprised me that English practitioners appear to dread the horse-doctor so much more than the French veterinary surgeon does. Trusting that you will forgive my hardihood in thus correcting a popular mistake with regard to the legal protection in France,

I am, sir,

A French Veterinary Student.

[We are not aware that veterinary surgeons in this country dread quacks or empirics. What they most decidedly object to, and deem a serious wrong, is the unlawful assumption of their title by such persons without any legal redress. Any individual in England, Scotland, and Ireland, may assume the designation of Veterinary Surgeon, and even M.R.C.V.S., without let or hindrance, and so designate himself in law courts, or elsewhere, with absolute impunity. Therefore it is that farriers, cow-leeches, grooms, rejected students, and other illiterate and ignorant men, are practising as "Veterinary Surgeons" all over the land, and imposing upon the public; the certified members of the profession having no means of preventing their adopting the title. Our correspondent's letter renders it evident that this dishonest and injurious custom is not permitted in France. Veterinary surgeons in Britain are not so much anxious to suppress quackery as they are to prevent imposition, which does the good name of their profession so much harm, and is

damaging to the public interests. Quacks may pursue their calling, but they should not be allowed to do so under a title to which they have no right, which misleads the public, and which legally belongs only to those who have obtained the diploma of the Royal College of Veterinary Surgeons. In France these men dare not call themselves Veterinary Surgeons ; in England they can, and this constitutes a very material difference in the position of our profession in the two countries.—ED. *V. J.*]

THE "FLEMING TESTIMONIAL FUND."

To the Editor of the VETERINARY JOURNAL.

SIR,—I am reluctantly compelled to ask you to grant me a little of your valuable space, to explain away a false impression that has arisen anent the origin and management of the above movement.

Several letters have been addressed to Mr. Rowe, honorary secretary, under the impression that he was acting for the Central Veterinary Medical Society, and that the movement emanated from them. Now, I wish this erroneous impression to be permanently removed—for reasons other medical associations will easily apprehend ; therefore I need not enter upon them.

The subject was mooted some two or three years ago, when Mr. Roalfe Cox and our late lamented and highly-esteemed friend, Mr. Field, jun., were entrusted with the management, and to bring the subject prominently forward ; and in such able hands the testimonial must have been a great success. But Providence removed the latter from amongst us, in the prime of life and zenith of usefulness, while the former useful advocate has been so unwell that it has been a severe trial for him to attend his important professional duties. Hence the business relapsed into abeyance, until I thought my leisure could not be better employed than by pushing the work they had already begun into life and working order. I therefore consulted Mr. Cox, and with his sanction started the ball in motion, taking up the running where he ceased. I solicited the assistance of members of Council, professors, and others, to form a provisional committee,—which committee was formed, with the President of the R.C.V.S., Major-General Sir F. Fitzwygram, Bart., as chairman ; power being reserved to add to the committee. I am pleased to know that many additional names have been sent in ; and I trust that all our veterinary medical associations will work with the general committee (as I feel sure they will), so that by their united efforts we shall realise a great success, and make the "testimonial" worthy of the man, thereby recognising honest worth whilst in the quick. Let us remember the words of Aristides :

> "Urit enim fulgore suo, qui prægravat
> Artes infra se positas . . .
> . . . extinctus amabitur idem,"—

which may be thus rendered :

> "For he who soars to an unusual height,
> Oppressive dazzles with excess of light,
> The arts beneath him : yet, when dead, shall prove
> An object worthy of esteem and love."

I am, sir,

Obediently yours,

ROBERT WARD, F.R.C.V.S.,

Treasurer.

London, W., *April 16th*, 1878.

"A REMINISCENCE OF DUTIES IN THE COUNCIL."

To the Editor of the VETERINARY JOURNAL.

SIR,—It has often occurred to me, when reading criticisms of some of the writers in the pages of the *Veterinarian* and *Veterinary Journal*, that it would be in some degree a satisfaction to them, and perhaps to some other members of our profession, if some member of Council would give them a fuller account of our doings in the Council than is vouchsafed them by the usual channel. It is not my intention to exceed the legitimate bounds of privilege. I have been a member of Council for nearly twenty years; am a tolerably regular attendant of the meetings; and I say it to the honour of that body, that each member is sincerely actuated by the leading idea to exercise his best abilities for the good of his profession. It is true, many men have many minds, possess different talents and aptitudes for business; also different degrees of intelligence. We have in the Council gentlemen of education and refinement, possessed of natural shrewdness, some of them of large practical experience, some of them of a theoretical and some of a practical business turn of mind; but each and all take a deep interest in our common profession, and use all their powers to raise its character and its efficiency. Our chief and ostensible duty is to appoint examiners and grant diplomas, also to keep a constant and careful supervision over the interests of our profession; but there are numerous matters being constantly brought before the Council for careful consideration, which the outside members of the profession never hear of.

Some of my professional brethren are inspired with a laudable ambition, and consider it a high honour to be a member of Council; others may look upon it as an inconvenience and a trouble to leave the ordinary routine of business to attend its meetings; members living fifty, a hundred, or two hundred miles away from the Royal College of Veterinary Surgeons, have to make up their minds to submit to the call upon their time and purse; it will require a whole day to attend each meeting five or eight times a year; the mind is kept up to its highest tension for three or four hours at the meeting, and then return home at nine or twelve o'clock at night, to travel until three or six o'clock the following morning. This time taken when one is busy, and has many serious cases on hand, is ill spared, and attended with more or less inconvenience. At times of excitement, when matters of great importance are on the *tapis* in the Council, it is necessary to attend ten or fifteen times in the year, besides the committee meetings, at which it would surprise any non-members of Council to see the work that has to be done.

I well remember the time when we applied to Parliament for a Veterinary Medical Act, and gave reasons (see page 527 of Journal for 1866), and the times when the two applications made to the Government for a Veterinary Charter for Scotland, the one in 1867-8, the other in 1876-7: we had many special meetings in addition to the quarterly meetings; we found each application was made by all the influence and with all the urgency that could possibly be brought to bear upon it by the magnates of Scotland—viz., the noblemen, the Highland and Agricultural Society, together with the Lords Provost of Edinburgh and Glasgow, and members of the corporation of Edinburgh. The deputation who presented the prayer was in each case a very powerful body indeed. They urged their claims with all the force and persistence they were capable of. The Lord President of the Privy Council, His Grace the Duke of Richmond and Gordon—to whom the matter was referred, and who, it must not be forgotten, was also chairman to the Highland and Agricultural Society of Scotland—took time to consider it in both cases. We all felt that our position was in great peril, that a dangerous crisis existed. These were indeed very anxious times for our Council: every cloud in the horizon seemed black and ready to burst; but even at the worst,

our hearts did not sink within us, for we knew our cause was just. We had on this last occasion a gentleman—Sir Frederick Fitzwygram—at the helm, in whom we had implicit confidence; his value and use to us and to the profession at that moment was simply inestimable. The matter was referred by the Council of the Royal College of Veterinary Surgeons to a committee, to take what measures they considered best under these urgent circumstances. On both occasions we formed deputations to wait upon the Lord President of the Council. I had the honour to form one of the first deputations, and to urge our reasons against the granting of a Veterinary Charter for Scotland. The last committee was composed of Sir Frederick Fitzwygram, Messrs. Collins, Harpley, Fleming, Field, and myself; we met at the Royal College of Veterinary Surgeons on the day after one of the Council meetings; we were engaged for 3½ hours. Sir Frederick and Mr. Harpley, being Governors, having to attend a meeting of the Governors of the *Chartered* Royal Veterinary College at Camden Town, we adjourned for 2 hours; then we met again for another 2 hours. During the whole of these 5½ hours, we were most earnestly and intently occupied with the consideration of the question as to the best course to pursue to obviate the attainment of what we considered must prove to be a great calamity to the well-being of our profession. We interchanged and discussed each other's ideas freely, frankly, and untiringly; some of my suggestions were approved and adopted, some of Mr. Fleming's were adopted; but the bulk of the reasons (see page 127 in the *Veterinarian* for 1876) against the granting of a separate charter for Scotland emanated from the clear heads of Sir Frederick and Mr. Harpley. I freely accord to them the honour of manipulating the chief of those reasons—reasons which were so clear and forcible, that no sooner had they been perused by His Grace the Duke of Richmond and Gordon, than he at once decided to refuse to grant the prayer of the petition for a Veterinary Charter for Scotland. I feel no hesitation whatever in saying that all the credit and honour is due to Sir Frederick for this successful result, he having brought to bear upon the question his great mind and lucid thought, his tact and his influence. The attention and time he gave to this matter was great and unsparing; the dozens of times he had to call upon our solicitor, the parliamentary agent, the Government offices, etc., etc.,—and yet there are those in the profession so full of a carping and contentious spirit, that they can see only faults where they ought to applaud. Even the new Charter, the preliminary examination, the extended curriculum of study, the practical examination, the Fellowship degree, the voting papers for members of Council, and the holding of the annual meeting in Edinburgh, are all matters of questionable utility in their eyes, although they see that *London is no longer the only place* to hold the annual meeting.

Some of my professional brethren say that a member of Council should be a superior man—a man of a refined and cultured mind, a gentleman possessing a classical education and scientific attainments; but I say he ought to possess other qualifications also. He should give proofs that he has the well-being of the profession at heart, and that he takes a deep interest in everything that appertains to its real advancement. He should possess not only ability and intelligence, but also be a man of close observation and clear discernment, having large and long experience in his profession; a man of position and character, and who understands fully the kind of education that will fit the young man best for the performance of his varied duties.

We have *no partiality between the two countries*—not the least desire to detract in the slightest degree from the position and character of those who have matriculated at the Edinburgh Veterinary College, but would much rather freely admit that many of those, our professional brethren, such as Fitzwygram, Collins, Williams, McCall, Gamgee, Fleming, Lawson, Cartledge, Robertson and Robinson, and others whom we could name, who have

joined the corporate body, are amongst the very best men in our profession ; and we hesitate not to say that some of them are now, and others that we could name would be if elected, an honour to the Council, and even to the Presidential chair. We have always admitted this ; we are now, and always have been, most anxious and solicitous that they all, without a single exception, should partake and possess the same advantages and privileges as ourselves ; *we wish to give them a fair chance to take their proper place amongst us ;* they would be heartily welcomed. We have offered the gentlemen who hold the Highland and Agricultural Society's certificate alone, every chance to obtain our diploma ; we see their own friends freely and frankly admit that their certificate is not a "legal diploma" ; and even when they showed no inclination to enter the corporate body, we offered them inducement after inducement in the way of granting to them the diploma on only a formal or practical examination. We admit fully, and take it for granted, that these gentlemen have studied the same subjects, and have been as well taught as ourselves ; we are most anxious that they should possess a legal status, a legal standing. We have given every member of the Royal College of Veterinary Surgeons in Scotland a vote for members of Council, without having to come to London to record it. I feel it is a pity the holders of the Highland certificate do not join us, if only to put them in possession of a vote. We have inserted a clause in our new Charter to hold the annual meeting of the profession in Edinburgh once every third year. The Council were very anxious that it should be held in Edinburgh this May, and no one was more anxious, or fought more stoutly for it, than our noble and worthy President.

I am, sir, yours obediently,

THOMAS GREAVES, F.R.C.V.S.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from G. Evans, Royal Artillery, Sealkote ; R. S. Laws, Toulouse ; T. Briggs, Bury ; J. Webb, Bishop's Stortford ; J. and J. Robinson, Dunscar, Lancashire ; J. Lambert, 17th Lancers, Leeds ; J. W. Hill, Wolverhampton ; J. Roalfe Cox, London ; R. Ward, London ; S. Locke, Manchester ; A. MacGillivray, Banff ; W. H. Coates, London ; T. Greaves, Manchester.

BOOKS : *A. E. Vachetta*, Elementi di Patologia Chirurgica degli Animali Domestici ; *A. De Silvestri*, Compendio di Patologia e Terapia Speciale degli Animali Domestici ; *F. Konhäuser*, Die Krankheiten des Hundes ; *T. M. Dolan and S. Pozzi*, On the Indications for the Use of the Trephine ; *C. H. Hertwig*, Les Maladies des Chiens et leur Traitement ; *R. Brown*, The Countries of the World ; *A. Chauveau and S. Arloing*, Traité D'Anatomie comparée des Animaux Domestiques.

JOURNALS : *Medical Press and Circular ; Lancet ; Journal of National Society of Victoria ; Oesterreichische Vierteljahresschrift f. Wissenschaftliche Veterinärkunde ; Archiv f. Wissen. u. Practische Thierheilkunde ; Recueil de Méd. Vétérinaire ; Revue Vétérinaire ; Deutsche Zeitschrift f. Thiermedicin ; Annales de Méd. Vétérinaire de Bruxelles ; Veterinary Review ; Archives Vétérinaires ; Wochenschrift f. Thierheilkunde ; Der Thierarzt ; Philadelphia Medical Times ; British Medical Journal ; Central-Blatt für das Deutsche Reich ; Animal World ; New York Hospital Gazette.*

NEWSPAPERS : *Philadelphia Inquirer ; Philadelphia Public Ledger ; Farmer ; Mark Lane Express ; Agricultural Gazette ; North British Agriculturist ; West Briton and Cornwall Advertiser ; Flood, Forest, and Stream ; Indian Civil and Military Gazette ; Scotsman ; Land and Water ; Montreal Gazette.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1878.

ON THE PATHOLOGY OF THE SO-CALLED PIG-TYPHOID.*

BY WILLIAM OSLER, M.D.

(*Professor of Physiology and Pathology in McGill University, and the Veterinary College, Montreal*).

THE most diverse opinions prevail as to the true nature of this disease; upon these I shall not comment at length. Many of the Continental pathologists class it with Anthrax, and in some of our English text-books it is treated under the same heading. The researches of Budd, in 1865, led him to the conclusion that it was a Typhoid Fever; those of Murchison, that it belonged rather to the dysenteric affections. The interest excited in the disease by these early investigators died away, to be awakened ten years after by a series of papers from the pen of Professor Axe, in which he substantiated and extended the views of Dr. Budd, stating that, etiologically, chemically, and pathologically, the disease was an exact counterpart of human Typhoid. Dr. Klein has more recently investigated the disease with special reference to this point, and has arrived at an opposite conclusion—holding that the so-called Pig-Typhoid has no analogy with the disease bearing this name in man.

* An abstract of this paper was read before the Pathological Society of New York, January 23rd, 1878.

Having, in the course of my reading, become acquainted with this unsettled state of the matter, I gladly, at Principal McEachran's suggestion, investigated a local epizoötic which had broken out near Quebec, in a drove of 300 hogs—hoping that, by a series of independent observations, the truth of one or the other of these views might be confirmed.

Etiology.

The highly contagious and infectious nature of this malady has been known for years—being first established, I believe, by Dr. Sutton, of Illinois. The following experiments, though limited in number, are, I think, worthy of record, as they confirm and extend those of Professor Axe and Dr. Klein.

Experiment I.

September 1st.—A sow pig, ten weeks old, was inoculated with lymph and blood obtained by squeezing a portion of ecchymosed skin from a diseased animal, and collecting the exudation on ivory points.

No change noticed until the 6th, when the animal did not appear so lively. Temp. $104\frac{2}{5}°$.

7th.—Place of inoculation has dried up. A diffuse subcutaneous redness exists over skin of belly, and certain of the hair follicles are swollen, papular, and surrounded by irregular but circumscribed zones of hyperæmia. These are best seen in the groins, where the general redness is not so marked. Temp. 105°.

9th.—Blush on abdomen not so vivid. Spots about hair follicles persist. Animal feeds well. Temp. $106\frac{4}{5}°$.

11th.—A few reddened papules on skin of abdomen. Hyperæmia has faded. Temp. $106\frac{2}{5}°$.

13th.—No change. Temp. 106°.

14th.—Skin looks harsh, and the hairs appear rougher than natural. Temp. $106\frac{2}{5}°$.

16th.—Eyes watery. Animal looks ill, but feeds well, and has no diarrhœa. Temp. $106\frac{4}{5}°$.

17th.—Back somewhat drawn up. Dirty secretion about the

eyelids. Skin of abdomen is of a dusky-red hue, and the papules about the hair follicles are again very distinct. A few ecchymoses about the back of ears. Temp. $105\frac{4}{5}°$.

18th.—Skin of whole body of a deep dusky-red colour, brightest on the abdomen. It disappears on pressure, returning very slowly. Over the sternum and in the axillæ there are definite ecchymoses. Inguinal glands are swollen. Animal does not feed so well. No diarrhœa. Mucous membrane of rectum reddened. Temp., morning and evening, 102°.

19th.—Much the same. Temp., morning 104°, evening 105°.

20th.—Skin harsh. Eyes lustreless. Not so red. Ecchymoses have not extended. Temp., morning and evening, 105°.

21st.—Animal feeds better; redness much diminished. Temp., morning 104°, evening 103°.

22nd.—Inguinal glands still swollen. Temp. $104\frac{4}{5}°$.

23rd.—Ecchymoses fading on belly, but still distinct behind the ears. No diarrhœa. Temp. 104

25th.—Animal has lost flesh, but is not much emaciated. Temp. 103°.

26th.—Temp. 106°. The extravasations are scarcely visible.

27th.—Temp. $104\frac{4}{5}°$. Swellings of the inguinal glands not so marked.

28th.—Temp. 104°. Animal decidedly better. Feeds well.

29th.—Temp. $103\frac{2}{5}°$.

30th.—Temp. $103\frac{3}{5}°$. Is brighter; skin not so harsh, but on belly numerous dirty scales can be scraped off.

From this time the animal improved in every way, and appeared convalescent. On October 10th I inoculated it again with blood from Case V. (fed with diseased intestine). During the succeeding week I was so occupied that the animals were not visited. I then found this one febrile, temp. 106°, ecchymoses in ears, and suffering from diarrhœa. It became moderately emaciated; the fever kept up, though it was never high; and extravasations occurred about the thighs. It died on October 25th.

Post-mortem.—A few patches in cæcum and about valve, and half a dozen in the colon; some of the latter are excavated, with puckered infiltrated edges. Lungs unaffected.

Experiment II.

September 1st.—A ten-weeks-old sow pig was inoculated by scratching and rubbing in material obtained from an intestinal plaque of a diseased animal. Pulse immediately after the operation 100. Temp. 106°, with two thermometers.

Nothing unusual noticed at the daily visits, until the evening of the 6th, when the animal appeared less lively, and lay beneath the straw. A swelling has been gradually forming at the site of inoculation, and an inguinal gland in the neighbourhood is enlarged.

7th.—A faint, just perceptible redness exists on skin of belly and inner surfaces of front legs; in the latter situation are a few hyperæmic papules about the hair follicles. Temp. 105°.

9th.—Redness gone. No constitutional disturbance. Temp. $105\frac{1}{5}°$.

11th.—No change. Temp. 105°.

13th.—Hyperæmia gone. One or two papules in grooves and inner surfaces of legs. Temp. 106°.

14th.—Swelling at site of inoculation persists. Inguinal lymphatic glands enlarged on right side. Temp. 107°.

16th.—No change. Temp. 106°.

17th.—Does not look so ill as the other animal inoculated at the same time. No cutaneous affection; no diarrhœa; feeds well. Temp. $105\frac{4}{5}°$.

18th.—Temp. $102\frac{3}{5}°$; evening 103°.

19th.—Morning temp. $101\frac{3}{5}°$; evening 104°. Condition the same. Has become thin, but not so much so as the other animal.

20th.—Temp., morning 103°, evening 104°.

21st.—Temp., morning 104°, evening $103\frac{4}{5}°$.

22nd.—Morning temp. 102°. Does not look ill.

23rd.—Temp. $103\frac{2}{5}°$.

24th.—Temp. 103°.

25th.—Temp. 104°.

26th.—Temp. 105°. Anus slightly prolapsed, but mucous membrane not injected. No diarrhœa.

27th.—Temp. 104°.

28th.—Temp. 104°.

29th.—Temp. $103\frac{3}{5}^{\circ}$

30th.—Temp. $103\frac{4}{5}^{\circ}$.

From this time I considered the animal convalescent, though the symptoms were so slight that I had doubts whether it had been affected at all.

On October 10th, I inoculated it subcutaneously with blood taken from the inferior cava of animal the subject of Experiment V., and killed on that day. During the following week, I was so much occupied that I neglected to visit the pig-pen, and was considerably astonished on the 18th, when the keeper sent word that the animal was dead. He stated that it had become much worse since the inoculation. I found the animal with the cutaneous lesions well marked, and the intestinal disease well developed.

Post-mortem.—Extravasations on thighs, buttocks, and ears. Recent peritonitis, pericarditis, and pleurisy.

Lower half of left lung pneumonic. Bronchial glands much swollen. *Stomach:* at fundus there are from ten to fifteen small yellowish patches, the largest the size of a sixpence; all confined to the mucosa.

Entire mucous membrane of cæcum infiltrated. In colon numerous button-like masses, many of which extend through the entire thickness of the bowel. No signs of softening or ulceration in any of the patches. Mesenteric glands swollen, but not hæmorrhagic.

Experiment III.

September 10th.—Caseous matter from bronchial tubes of a fatal case, *in which there was no intestinal lesion*, rubbed up with saline solution ($\frac{3}{4}$ per cent.); of this m. xv. injected subcutaneously in the left flank.

13th.—Temp., morning 103°, evening $103\frac{2}{5}^{\circ}$.

14th.—No change noticed. Temp., morning and evening, 104°.

15th.—Temp., morning $104\frac{2}{5}^{\circ}$, evening $104\frac{3}{5}^{\circ}$.

16th.—Site of injection is a little swollen. Temp., morning $104\frac{2}{5}^{\circ}$, evening $104\frac{4}{5}^{\circ}$.

17th.—Several distinct rose-coloured spots in right axilla, chiefly about hair follicles. Site of injection more swollen and hard. Temp., morning 106°, evening 105$\frac{3}{5}$°.

18th.—Other spots of hyperæmia on abdomen. They are about three lines in diameter, slightly elevated, and disappear on pressure. No general rash. Temp., morning 105°, evening 105$\frac{2}{5}$°.

19th.—Animal continues to feed well, but the skin and hair look rough. Temp., morning 109$\frac{2}{5}$°, evening 107$\frac{4}{5}$°.

20th.—No trace of any skin eruption; the small erythematous spots have faded. Temp., morning 105$\frac{4}{5}$°, evening 108°.

21st.—Site of injection remains hard. Temp., morning 107°, evening 106°.

22nd.—Eyes do not look so bright. Temp., morning 107$\frac{2}{5}$°, evening 107°.

23rd.—No diarrhœa. No rash. Temp., morning 107°, evening 107$\frac{4}{5}$°.

24th.—Not so well. Eyelids glued together with secretion. Temp., morning 109°, evening 108°.

25th.—Has diarrhœa. A muco-purulent discharge runs from the nose. A very faint rash exists over abdomen. Temp., morning 107°, evening 107$\frac{3}{5}$°.

26th.—Diarrhœa profuse. Extremities cold, and the nose blue. Rash scarcely perceptible. Temp., morning 107$\frac{3}{5}$°, evening 108$\frac{2}{5}$°.

27th.—Very weak, and considerably emaciated. Position when standing and general appearance very characteristic; back arched, and the hinder extremities seem almost unable to support the weight of the body. The gait is tottering. Diarrhœa very severe, and the keeper noticed a little blood in the discharges. Several large purpuric blotches on the hind-legs. No cough. Temp., morning 106$\frac{4}{5}$°, evening 106°.

28th.—Extremities cold and nose blue. Emaciation has increased. Extravasations have extended, and are seen on the front-legs as well. Site of injection still hard. Inguinal glands a little enlarged. Temp., morning 105°, evening 103°.

29th.—No change. Diarrhœa continues. Temp., morning 103$\frac{2}{5}$°, evening 106°.

30th.—No extension of the extravasation. Dr. Buller exa-

mined the eyes, and reports the retinæ healthy. Temp., morning 106$\frac{3}{5}$°, evening 106$\frac{4}{5}$°.

October 1st.—Very weak; can hardly stand. Diarrhœa very profuse. Temp. 104°.

2nd.—Appears completely exhausted. Nose quite blue, and extremities very dark. Temp. 102°. Died in the night.

Post-mortem.—Kidneys look natural. In greater curvature of the stomach there is a diphtheritic-looking area about 1$\frac{1}{2}$ in. in diameter, and near it some small patches of greyish-yellow infiltration. In the cæcum are several superficial plaques about the valve, one of which overlaps a patch of Peyer.

In the colon are twelve to fourteen isolated areas, involving only the mucosa, and showing no signs of separation.

Mesenteric glands swollen; some of them hæmorrhagic.

Experiment IV.

September 10th.—Mesenteric glands from diseased animal rubbed up with saline solution; m. xv. injected subcutaneously into right flank.

14th.—No change noticed. Temp. 103$\frac{4}{5}$°.

16th.—Temp. 105°.

17th.—A few rose-coloured spots noticed over sternum and epigastrium. No swelling at site of injection. Temp. 107°.

18th.—Nothing special noticeable except the hyperæmic spots on abdomen. Temp. 104$\frac{4}{5}$°.

19th.—Macula not so evident. Skin of ears congested. Temp., morning 109$\frac{2}{5}$°, evening 106$\frac{4}{5}$°.

20th.—No skin eruption visible. No swelling at site of injection. Temp., morning 106$\frac{1}{5}$°, evening 106°.

21st.—Animal feeds well. Temp., morning and evening, 106°.

22nd.—Temp. 107$\frac{1}{5}$°.

23rd.—No rash, but skin feels rougher than normal. Temp. 108°.

24th.—Is wasting, but continues to feed well. Temp. 107°.

25th.—Appears weaker, and has, for the first time, slight diarrhœa. Temp. 107$\frac{1}{5}$°.

26th.—Diarrhœa worse. Eyes look weak and the eyelids

are covered with secretion. Extremities cold. Nose blue. Temp. 107°.

27th.—A faint rash perceptible on abdomen, and four or five papules, dark in colour and hæmorrhagic, are seen just below the ensiform cartilage. Extravasations are also seen on the skin of the hind-legs. Diarrhœa continues. Temp., morning $105\frac{4}{5}°$, evening 107°.

28th.—Condition the same. Temp., morning and evening, 106°.

29th.—Very weak. Ecchymoses have not extended. Ears purplish. Temp. 106°.

30th.—Emaciation more marked, and general appearance very characteristic. Temp. $105\frac{4}{5}°$.

October 1st.—Very weak. Diarrhœa excessive. Skin rough and harsh. Temp. 104°.

2nd.—Respirations a little laboured, but no evidence of Pneumonia. Temp. 104°.

3rd.—Very feeble. Can scarcely stand up. Extravasations appear to have extended on the legs, and a few are visible on abdomen. Temp. 101°.

4th.—In a moribund condition. Died in the night.

Post-mortem.—Nothing abnormal noticed in heart, lungs, liver, spleen, and kidneys. In mucous membrane of cæcum and first two feet of colon, there are numerous ecchymoses. In the rectum they are submucous and more uniform, infiltrating even the muscular coat. About the ileo-cæcal valve are confluent plaques, which extend through all the coats and thicken the wall. In the colon the patches are small and button-like.

Mesenteric glands swollen, and present extravasations in cortical parts.

Experiment V.

September 10th. — Portions of two intestines, containing numerous plaques, were minced finely and fed to a sow pig ten weeks old. The feeding was done with as little violence as possible, and I do not think the mucous membrane was abraded in the act.

13th.—Temp. 103°.

14th.—Appears quite well. Temp. $104\frac{3}{5}°$.

15th.—Temp., morning $104\frac{3}{5}°$, evening 104°.

16th.—No change. Temp., morning 104°, evening $104\frac{3}{5}°$.

17th.—No rash. Temp. $105\frac{2}{5}°$.

18th.—Temp., morning $106\frac{1}{5}°$, evening $106\frac{3}{5}°$.

19th.—Has not fed so well, and begins to look ill. No trace of an eruption. Temp., morning 108°, evening 106°.

20th.—Fæces consistent, but a little bloody mucus noticed on the one which followed the introduction of the thermometer. Temp., morning $105\frac{4}{5}$, evening 106°.

21st.—Skin dry and harsh. Temp., morning $109\frac{4}{5}°$, evening $108\frac{1}{5}$.

22nd.—No rash. No diarrhœa. Temp., morning $102\frac{2}{5}°$, evening $104\frac{3}{5}°$.

23rd.—Temp., morning 106°, evening $106\frac{4}{5}°$.

24th.—Diarrhœa for the first time. Temp., morning 107,° evening $107\frac{4}{5}°$.

25th.—Diarrhœa continues, but is slight. No rash. Temp., morning 107°, evening $107\frac{4}{5}°$.

26th.—Is emaciated and weakened. The diarrhœa has been profuse. Temp. 108°.

27th.—Diarrhœa is better; stools soft but consistent. No ecchymoses. Temp., morning 110°, evening $108\frac{2}{5}°$.

28th.—Condition much the same. Is not nearly so weak as the other pigs. Temp., morning $107\frac{4}{5}°$, evening 107°.

29th.—Eyes are watery. Temp. 107°.

30th.—Diarrhœa is worse. Temp. $105\frac{4}{5}°$.

October 1st.—Emaciation more marked. No rash. Extremities and nose slightly cyanotic. Temp. 106°.

2nd.—Feeds tolerably well, and looks much better than the animals inoculated on the same day.

3rd.—Gait staggering, and general appearance characteristic. Temp. 104°.

The animal remained in this condition, getting neither better nor worse, until the 10th, when it was bled to death. The extremities and ears were purplish, but not distinctly ecchymotic.

Post-mortem.—Heart, lungs, spleen, liver, and kidneys, present no apparent changes. *In cæcum* are a dozen or more circular

patches, slightly depressed below the level of the mucous membrane. The surface is uniform, and they do not look as if sloughs had separated from them. For an inch about the valve, the mucosa is infiltrated with this greyish-yellow material. On the cæcal lip of the valve are eight or ten miliary elevations with translucent centres, looking like small lymph follicles.

In the first foot of the colon are six irregular depressed plaques, which appear to be healing: in some there is a distinct line of demarcation between the patch and the mucosa; in others this is not marked, but the mucous membrane is apparently encroaching on the plaques. In the rest of the colon the patches are numerous, and in many of them a central slough is separating. There is no congestion of the mucous membrane.

That the contagion exists in the serum of the skin had been shown by Professor Axe, and verified by Dr. Klein, who had also induced the disease by inoculation with material from the intestines. He had not succeeded in producing the disease with the juice of lymphatic glands, as has been successfully done in Experiment IV. of our cases. In his experiment of feeding an animal with the diseased intestines, infection followed; but he explains it by supposing that the morbid matter gained entrance to the blood through scratches in the mouth. In Experiment III., above given, infection also followed; and I think there is sufficient ground for believing that the disease was induced by the absorption of the *materies morbi* from the intestinal tract, for the experiment was very carefully performed, with the express view of avoiding possible abrasion of the mucous membrane of the mouth. Lastly, the successful experiment with the caseous matter from the bronchial tubes demonstrates, for the first time, that the contagion is also contained in the lungs, and shows us one fruitful source of contamination, not only in the expired breath, but also in the mucus so frequently coughed up.

In this connexion I would refer to some admirable papers by Professor Claypole, of Antioch College, Ohio, published in the *Western Farmer*, Ohio; in which the infectious and contagious nature of the malady is abundantly proved. These are of special value, insomuch as an opinion prevails among many in the Western States that the disease is not communicable.

Symptoms.

These have already been so fully described by other writers, that I shall refer to one or two points only. In the first place, the temperature range is exceedingly irregular. The relation between the morning and evening temperature is not at all constant, and very generally there was a morning exacerbation and evening fall. In comparing the charts of the five cases, there is an entire absence of the typical curves of human Typhoid. Secondly, the cutaneous eruption in this epizoötic was not so marked as in some which have been recorded. The ecchymoses were present in all the cases, with but one exception. These, however, though forming by far the most striking cutaneous lesions, are not regarded by Professor Axe as constituting the typical and characteristic eruption, which he states to consist in "small round raised spots of a faintly red colour." Such were certainly present in four of the five animals experimented upon, but I could not find them in a large number examined at Quebec in all stages of the disease; and I should like additional experience before concurring in the opinion that they constitute the specific eruption of this Fever.

And, thirdly, diarrhœa cannot be regarded as a constant symptom, for in more than half the cases examined the intestines contained consistent, sometimes hard, fæces.

Pathology.

The following is a summary of the pathological changes found in the nineteen cases which I have examined.

Skin.—In the majority of the animals definite changes were found in this structure. In the first place, the hairs had a rougher look and harsher feel than normally. The epidermis was frequently loosened in the form of fine scales. In four of the animals experimented upon, hyperæmia of the skin existed as a diffuse erythematous redness, which was in two instances general, in the others localized on the belly. During the second week there was, on four of these animals, an eruption of rose-coloured spots upon the abdomen and inner surfaces of the extremities. Some of these spots were flattened, slightly raised,

circular, about two to three lines in diameter, and disappeared on pressure; others were more pointed and papular in character, surrounding hair follicles, and situated upon hyperæmic bases. Not more than half a dozen of these were noticed on each animal, and it was only by careful inspection that they could be discovered.

In two instances scabs were formed, from beneath which pus exuded. The extravasations of blood into the skin, which form so remarkable a feature of the disease, were present to a greater or less degree in eighteen of the cases. Judging from the reports of other epizoöties, I am inclined to think that the cutaneous affection was slighter than usual. The extravasations most commonly occurred about the abdomen and flanks, the inner surface of the legs, about the hocks, and the ears. They varied from small punctiform and petechial hæmorrhages up to extensive areas of infiltration, giving to the skin a uniformly deep-red or purplish-red colour, upon which the impression of the finger made no difference whatever. In several instances the whole skin was covered with irregular blotches, and on cutting in these areas it was seen that the hæmorrhages lay chiefly in the corium, though often in the subcutaneous tissue. The ears were perhaps most frequently involved in this process, presenting a deep purple colour. In none of the cases was the skin much swollen, nor in any of the forty or more diseased animals which I saw were there any of the local patches of gangrene or necrosis described by some authors.

Pharynx.—In one case there was extensive diphtheria of the nasal passages, pharynx, and larynx; and in another case there were ulcers on the mucous membrane of the cheeks and lips.

Stomach.—In nearly every instance this organ contained food. As a rule, the mucosa was pale; and in three cases plaques or patches similar to those found in the intestines were met with.

Intestines.—In fifteen out of the nineteen cases the intestines were affected; in three they were apparently healthy; while in one the mucous membrane was ecchymotic. In two only of the nineteen cases did the small intestines present evidence of disease, consisting in a slight degree of diphtheretic-like exudation on the mucous membrane,—once in the ileum and once in the

duodenum. The mucous membrane was occasionally congested in places. Peyer's glands looked healthy. The large intestine is the seat of the peculiar anatomical lesions of the disease, and these we shall briefly proceed to describe. The mucous membrane is sometimes congested; but this was found to be a most variable character, for frequently, even when extensively affected, the mucosa itself was pale, though the large vessels in the submucous tissue were usually full. Extravasations occurred in five or six instances; in Cases 5 and 17 they were remarkably abundant. In the former the colon presented a dark colour, from the presence of extravasation in the submucous coat, while the whole thickness and extent of the rectum was infiltrated with blood. In Case 17 the same condition of the rectum was found.

The specific intestinal affection consists in an infiltration of the mucous membrane, either in localized spots or extensive areas, and the production thereby of larger or smaller patches of necrosis, which may assume very varied forms, and in time separate, leaving definite ulcers. I will group together the different appearances which the lesions presented:—

1. A brownish-yellow infiltrate, very like diphtheritic membrane, involving only the superficial layers of the mucosa, but frequently very extensive. This form was met with in five or six of the cases, chiefly along the ridges of the cæcum and colon. On section, it extends for a couple of lines into the mucosa, and cannot be separated without removing portions of that membrane.

2. Small greyish elevated spots, ranging in size from a pin's head to a split pea, seated directly upon, and involving the mucosa to a variable depth; frequently the edges of the projecting spots overlap the mucous membrane. Others, older perhaps, are seen in process of separation, as small central sloughs, divided by narrow grooves from the mucosa, which may even be elevated about them.

3. Patches ranging in size from that of a threepenny-bit to a penny or larger, circular, flattened, intimately adherent to the mucosa, yellowish-grey in colour, sometimes dark in the centre, and usually presenting a concentric arrangement, resembling a

flattened-out rupia crust, or the cross section of a calculus. Sometimes these plaques are ovoid, and frequently two or three have coalesced. Their concentric arrangement is their most peculiar feature, and is best marked in the larger ones, where a central spot can often be seen from which the process appears to have extended in zones. Some of the smaller ones differ from these, the surface being uniform and more prominent. On section, the patches show a yellowish-white colour throughout, and involve the coats of the bowel to a variable depth; some being confined to the upper part of the mucosa, others extending through its whole thickness; while others, again, involve the submucosa and muscular coats. They are firm and tenacious, not friable, resisting the scraping of a knife better than the mucous membrane itself.

4. Uniform involvement of large areas of the intestine converting the mucous surface into a yellowish irregular structure, like wash-leather, and in some instances extending through all the coats to the peritoneum, rendering the wall thick and inflexible.

5. In two cases most peculiar masses were met with in the colon, looking like warty excrescences, springing from the mucosa; they are oval, and lie transversely to the axis of the gut, encircling about three-fourths of the tube, and projecting from $\frac{1}{2}$ in. to 1 in. into the lumen. In the transverse direction they present a rounded concavity, while in the long axis of the bowel they are convex; the surface is dark or yellow-brown, and sometimes shows concentric lines. On section a firm greyish-yellow structure is disclosed, very dense, and involving all the coats to the peritoneum, which is puckered and retracted over the site of the attachment. One of these measured nearly $1\frac{1}{4}$ in. in thickness, and materially narrowed the calibre of the intestine.

Now all these lesions, though apparently different, are simply modifications of one and the same process. Between the first four, patches intermediate in character were met with, and in a larger experience I have no doubt connecting forms between three and five could be found.

Two facts are very remarkable about the condition of the

intestinal lesions. 1. The absence of ulceration in most of the cases; and—2. The very slight hyperæmia or injection of the mucous membrane about the plaques. Not more than four or five distinct *ulcers—i.e.*, breaches or loss of substance in the mucosa—were met with altogether. In the few instances when the crusts, as they have appropriately been called, have separated, the bases and edges of the ulcers are formed by greyish infiltrated tissue. Nothing exactly corresponding to these appearances is met with in human pathology; the condition which most nearly resembles it occurs in the severer forms of dysentery; and a short time ago, in a case of Pneumonia, I met with isolated rupia-like masses, infiltrated and projecting from the membrane of the colon, which somewhat resembled certain of these plaques.

Occasionally the solitary glands of Peyer, in the large bowel, were found swollen and distinct. In several instances numerous small elevated bodies, ranging in size from a pin's head to a split pea, were seen, usually with a small central depression and orifice. These closely resembled solitary glands, and, indeed, without microscopic examination, could not, I think, be distinguished from them. However, as will be subsequently stated they have nothing to do with the glands of Peyer.

Histological Examination.

Fresh portions from a small intestinal plaque teazed up in saline solution, show a finely granular stroma and numerous small cells, irregular in outline, solid, looking like fine nuclei, and about one-third the diameter of white blood-corpuscles. In thicker and older masses little can be seen but a granular débris, in which here and there the shrunken remains of corpuscles are noted. A study of sections of small areas the size of pin's heads, where the affection is beginning, shows that the process is confined to the mucosa. In the earliest stage at which I have been able to trace it, the crypts of Lieberkühn are filled with loosened epithelium, among which small corpuscles somewhat frequently occur. How the latter originate—whether from the epithelium or from the nuclei of the walls of the follicles—I cannot say, but in the next stage they form the predominant elements in

the section. The affected area appears infiltrated with small round lymphoid corpuscles, closely aggregated, which destroy all traces of the normal constituents of the mucous membrane. The muscularis mucosa is also infiltrated, and its elements separated. The submucosa at the same time contains numerous leucocytes.

In larger areas, the size of buttons, it can be seen that the densely-packed corpuscles have undergone a change; their outlines are less distinct, or altogether lost, and the section presents a homogeneous granular appearance. In thin sections, towards the surface, a laminated condition can be seen, depending, apparently, on thin translucent bars traversing the matrix, very like those met with in croupous and diphtheritic membrane. Comparing the appearance with specimens in human pathology, it most resembles the firm caseous material of the central part of a syphiloma. All the greyish-yellow plaques present great uniformity in this respect. Fine hairs and particles of food are not uncommonly attached to the surface. The deeper parts of the masses present appearances which vary with the depth to which the disease has extended. When of any size, the submucosa is usually involved, and the mass is then densely adherent to the muscular coat, the inner fibres of which are infiltrated with the small corpuscles above referred to. In many instances the entire thickness of the gut is attacked, and converted into a firm, dry, non-vascular structure, on the peritoneal surface of which alone is there any cellular activity.

Bacteria and micrococci were occasionally met with, but not in situations or numbers to be of great pathological importance.* None were seen blocking blood or lymph vessels. Several masses were noticed in Lieberkühn's crypts; most abundant in one in which a hair was found, the root of which was surrounded by groups.

The peculiar structures like solitary glands, noticed in some cases, demand a passing word. They have nothing to do with these bodies, but are *involutions* of the crypts of Lieberkühn,

* See Dr. Klein's paper on this malady in the last number of the *Journal*, p. 349.—Ed. *V. J.*

forming saccular cavities, communicating with the exterior by a narrow orifice which is usually plugged. In sections the contents of the sac very frequently fall out. They are similar, apparently, to what Cornil described as mucous cysts in a case of dysentery; but Kelsch, quoted by Birch-Hirschfeld,* first gave the correct interpretation of the appearances. Klein gives an excellent account of them in his paper.

Lymphatic System.

In ten of the cases, the mesenteric and retro-peritoneal glands were enlarged and of a deep-purple colour, owing to extravasation, chiefly into the cortical regions. In many sections the entire gland structure was infiltrated with blood, presenting on section a deep plum colour. In six cases they were swollen and tumefied, but not congested. In three of the cases in which there was no intestinal affection, they appeared normal.

In all of the cases in which the lungs were diseased, the bronchial and sternal, often the lower cervical glands, were swollen and congested.

Lungs.—After the intestines, the lungs appear to suffer most severely. They were more or less affected in ten of the cases three of these being unaccompanied by any intestinal lesions. The disease is a Broncho-pneumonia, involving the air-cells and finer tubes, which become obstructed, owing to an enormous proliferation of the cells and exudation into the air-vesicles. In this way lobules are transformed into firm hepatized masses, and by the extension of the process whole lobes are affected. A peculiar feature in this Pneumonia, and one which gave an odd appearance to the sections, is the blocking up of the tubes in the inflamed areas with firm, perfectly white, cheesy-looking matter, composed of closely crowded corpuscles, which have either been pushed up from the air-cells, or have originated in the inflammation of the tubes. In nearly every instance these cheesy or caseous casts of the tubes could be squeezed out in the inflamed areas. Some of the lobules, owing to the great increase and over-crowding of cells, become pale, soft, and friable, either

* "Lehrbuch der pathologischen Anatomie," 1877.

being converted into a uniform cheesy mass, or breaking down into small abscesses.

Spleen.—No special affection of the spleen was noted, and it certainly exhibits in the pig a very different behaviour to that which we are accustomed to see displayed by this organ in the acute eruptive fevers of man. In only one instance was it swollen and enlarged—in the state commonly seen in Typhoid and other fevers, and described as acute splenic tumour.

Kidneys.—The kidneys also are but slightly affected. In most of the cases the cortical region was pale, owing to slight swelling of the tubules, but nothing was apparent microscopically beyond a granular condition in the epithelial cells.

In the pelvis ecchymoses were noticed in several instances.

Liver.—In Case 14 the liver was swollen, soft, dark in colour, the cells very granular and fatty. In the rest of the cases there was little or no evident change in this organ. It looked, in fact, remarkably healthy, and on examination the fatty infiltration of the cells was found normal.

Blood.—Repeated examinations of this fluid were made in all the animals experimented upon, but no definite changes were observed. The red corpuscles tended to aggregate together into irregular clumps. No increase in the colourless elements; no foreign constituents.

Conclusions.

I. The so-called Pig-Typhoid is a disease *sui generis*, presenting anatomical and clinical features distinct from any other affection.

II. It presents no analogies, either pathologically or clinically, with Typhoid Fever in man.

III. Neither has it any affinity with Anthrax, as claimed by some Continental writers.

IV. If we take the intestinal lesions as characteristic, the disease must be regarded, with Dr. Murchison, as dysenteric in its nature; although the cutaneous and pulmonary affections, as well as certain of the clinical features, meet with no parallel in human dysentery.

COMMINUTED FRACTURE OF THE TIBIA SUCCESSFULLY TREATED.

BY W. A. TAYLOR, F.R.C.V.S., MANCHESTER.

OSSEOUS fractures, particularly those occurring to the long bones of the extremities, are seldom treated in veterinary practice, owing to the difficulties met with, and which, up to the present time, are found to be in a large majority of cases insurmountable, from the difficulty in placing our patients in a position favourable for the development and proper completion of the reparative process; and also owing to the fact, that attempts to "set" the broken limbs of our equine and bovine patients are not often permanently successful. To these causes militating against a desire on the part of the practitioner to render surgical aid, may be added, to the owner, the serious item of expense incurred by treatment and keep.

In this instance, the subject was a mare pony, eight years of age, with foal at foot a fortnight old. On the 20th of June last, she received a kick from a carthorse on the off hind-leg, which completely broke the tibia. The fracture—a comminuted one—was located at about the superior portion of the lower third of the bone, and the leg from below the lesion was pendulous.

The pony was placed in slings, and the leg "set" as follows:—A coating of melted pitch, half an inch in thickness, extending and encircling the limb from the stifle to below the hock, was first applied. Immediately upon this fine-cut tow was dusted; then a strong linen bandage was firmly rolled round the limb, from a little below the stifle to the foot. Over the whole was placed a stout leather bandage, made to fasten with straps and buckles, in order that pressure might be regulated as desired. This appliance, however, extended only from the superior portion of the tibia to the hock.

On the 23rd of July, the bandages were taken off and re-applied as before, but not so tightly. The coating of pitch was not interfered with. There was at that time extensive tumefaction of the leg in the neighbourhood of the lesion, and union of the fractured extremities was demonstrated by the pony being able to place the foot upon the ground, and bear weight upon

the limb. From this period, and indeed from the commencement of the treatment, favourable progress was discernible; and at about the latter end of August the bandages were dispensed with, the pitch was left to crumble and fall off, and the pony was allowed its freedom in the loose-box. Afterwards, walking exercise was indulged in, and ultimately the patient was turned out to grass with her foal. Considerable atrophy of the muscles of the quarter, stiffness of gait, and dragging of the limb, were evident. The tumefaction in the vicinity of the fracture gradually decreased, and finally resolved itself into an osseous deposit on the inner aspect of the tibia, in size and form closely resembling the half of a pigeon's egg.

At the present time (April 1878) the limb is, with the exceptions of a bone-spavin on the hock, and the ossific deposit just alluded to, the exact counterpart of its fellow. In walking, the leg in question is flexed somewhat stiffly; but this soon passes off on causing the pony to trot, and is apparently due to the presence of the spavin, which is a large one. Proper medicinal and dietetic measures were, of course, resorted to. The pony is now undergoing daily work, and recently won a trotting match.

The success of the treatment was probably attributable, in a great measure, to the quiet disposition displayed throughout by the patient, rather than to any novelty in the method pursued.

INVERSION OF THE UTERUS IN A MARE.

BY J. WOODROFFE HILL, F.R.C.V.S., WOLVERHAMPTON.

ON the evening of April 12th, I was requested to attend a mare ill after foaling, belonging to Mr. Birch, of Hilton.—On my arrival I found the animal in a sad plight; she had foaled some two hours previously, and six weeks before due. The whole of the uterus was inverted and considerably lacerated. The patient was so excessively weak that it was with great difficulty she could be kept in a standing position; breathing hard, pulse almost imperceptible, eyes sunk, and visible mucous membrane highly injected.

I at once proceeded to return the uterus, by pushing it in from the centre to the extent of my arm's length; it was there maintained by one of the men, following my hand with his. I then withdrew my own, and commenced to work the other portions in bit by bit. In a few minutes we had returned the whole, but the patient strained so violently that we had great difficulty in preventing her expelling the uterus again. The man's arm was kept in until the straining ceased. I then plugged the vagina with cloths saturated with cold water, and administered four ounces of laudanum in half a pint of brandy, leaving a diffusible stimulant to be given every three hours in gruel.

On my visiting her the following day, I was agreeably surprised to find her lively, feeding, the pulse 45 and good, breathing normal, and, in fact, all inflammatory symptoms subsided. The cloths had been removed from the vagina, and no after straining took place. I enjoined good nursing and quietude, with laxative food, and made no other visit.

On the 17th I saw the owner, and was informed the mare had gone on well, and appeared quite herself.

I may mention there was no lacteal secretion, and the foal died a few days after birth.

THROMBOSIS OF ONE OF THE HEART'S AURICLES AND THE ILIAC VESSELS.

BY A. L. GIBSON, M.R.C.V.S., BIRMINGHAM.

To-day (April 20th), I sent to the Brown Institution the most perfect fibrinous cast of the right auricle of the heart that I ever saw, together with the lumbar section of the spine of an animal which died yesterday. The subject was an aged French mare. On Tuesday last she was in a tram-car, and ascended a hill perfectly well, without turning a hair; but all at once she suddenly fell, and lost the use almost entirely of her hind-quarters and legs. She was carried to the stables, and the foreman gave her a couple of colic draughts, and then sent for me. I was in London; so my friend, Mr. Parker, kindly attended and administered a dose of physic, and applied some

stimulating liniment and hot blankets to the loins—leaving word if they thought her worse to let him know. I returned home very late, and, they not having sent again, concluded the animal must be going on all right; so I went on Wednesday morning, but found the patient still unable to rise, though struggling to do so. I administered some ol. lini. and terebinth, and a little more aloes, continuing the liniment and hot fomentations. The bowels responded most favourably, as did also the kidneys. She would drink gruel, eat a little steamed hay, and even a little bran; but for all that she seemed to be in continual pain, and when it became very severe she struggled very much. I then commenced giving hydrarg. chlorid., aloes Barb., g. opii, and nux vomica, to alleviate her sufferings, as I had no hope of her recovery. To make a long story short, she died on Friday afternoon, at 3.15. I made the *post-mortem* examination at 10 a.m. to-day. The stomach and bowels were natural, and contained ingesta in a nice softened condition; the kidneys were very healthy, as also were the liver and spleen, but congested a little. The lungs were both congested, and upon cutting into the heart I removed from the right auricle the fibrinous cast I have sent for inspection. The muscular structure of the heart was very pale and friable, and contained a lot of what I should call "tar" metaphorically—not *blood;* as did also all the vessels, especially in the lumbar region. There was a beautiful fibrinous cast of the iliac vessels, with moulds of every bifurcation; but while I was not observing, the butcher spoiled it. The whole lining membrane of the bloodvessels was nearly as black as the blood contained in the heart. A considerable amount of serum escaped upon dividing each vertebral articulation, in order to procure the section of the spinal cord sent, and the lining membrane of the canal and the coverings of the cord were highly injected. The whole of the muscular tissue was pale and friable. I should be glad of an opinion in this case, as it will be perceived that it appears to have only affected the larger vessels, and had not produced that effect on the smaller ramifications amongst the muscular tissues seen in Charbon. I am certainly at a loss to know what to call it. I told our people that she had died from acute congestion of the spinal cord, and

that effusion had taken place. So far I was right, but I cannot account for the intense pain exhibited, unless from some hyperæmic condition of the nerves and nerve-centres.

[The clot sent by Mr. Gibson weighed fourteen ounces, and must have filled the auricle, of which it formed a tolerably perfect cast, there being merely a groove on one side for the passage of the blood into the ventricle. It measured $6\frac{1}{2}$ by $4\frac{1}{4}$ inches, and extending from it were branches into the anterior and posterior venæ cavæ; the clot from the posterior cava being 11 in. long, $1\frac{1}{2}$ broad, and $\frac{5}{8}$ths in thickness; that into the anterior cava measured two inches. In structure the clot showed the tendency to fibrillation observed in fibrinous deposits, and was roughened on the surface, as if adherent to the endocardium, a portion of which it would have been interesting to examine. The portion of spinal cord was so much decomposed that, after being in spirit for nine days, it could not be cut into sections.—W. DUGUID.]

THE "LOODIANA DISEASE" OR "MALIGNANT FEVER" OF INDIA.

BY GRIFFITH EVANS, M.D., VETERINARY SURGEON, ROYAL ARTILLERY, SEALKOTE, PUNJĀB, INDIA.

SINCE I sent my last communication on this subject to the *Veterinary Journal*, I have had another case of Loodiana Disease under observation, which is of special interest.

Those outside the profession seldom consider the difficulties veterinary surgeons have in the investigation of disease, owing to horses not being able to speak a human language, and to grooms not reporting at once when horses begin to be ill. It is very seldom we have a chance of seeing our patients in the earliest stages of disease. The later group of symptoms cannot always be interpreted until we are acquainted with the earlier; and the most observant groom cannot give us the information we need as to the earliest stages of diseases such as "Malignant Fever."

I was anxious to know, among other questions, whether the temperature of this disease in the earliest stages was higher than in the later stages. The cases I saw were far advanced before I could test the temperature; but it appeared that the temperature did rise towards the end. I could not tell whether the first wave had been higher than the last. I also wished to know how early in the development of the disease the worm-like bodies appear in the blood, and whether the worms or the pyrexia symptoms are first manifested. The case which I now publish shows, 1st, that the first wave of temperature may be higher than the last; 2nd, that pyrexia may make great progress before the worms appear in the blood; 3rd, that the worms do not appear all at once, but gradually increase in number; 4th, that those blood-worms may be found in the mucus of the lungs, free from blood.

Now, these are all very important items in this pathological investigation. I do not know whether these facts will prove uniform in future cases. I record them now as simple facts, for the benefit of other investigators. When we get a few more facts, and learn which are constant in the disease, perhaps we can venture to form a theory thereon.

Case V.

No. 98, H. C., Royal Horse Artillery; "Waler" mare, aged nine years.

March 2nd, 1878.—At 12.45 (noon) this mare was brought to the infirmary, owing to her being off her feed. She walked steadily, looked lively; visible mucous membranes normal; fæces and urine normal; pulse 40, full and soft; respirations 18. Felt hot all over; temperature of rectum $108\frac{1}{5}^{\circ}$. Blood under the microscope normal; the red discs beautifully defined, forming *rouleaux*, and having no disposition to unite by their edges, or run into a jelly-like mass, as they did in the other cases. On making inquiry, I found she had fed well this morning, went out to exercise, and felt strong and active under the man; returned from exercise at 11 a.m., when she drank water as usual, and soon afterwards commenced to tremble all over. The "syce" did not report this until I asked about it, because

he thought it was the effect of drinking cold water, and it did not last long. There is not a single symptom present suggestive of "Malignant Fever," except the high temperature; but that seems enough. It is worthy of remark that, in cutting the skin for a drop of blood, she appeared to feel as much pain as most healthy horses would, and the blood flowed freely—very different in these respects from the other cases. Let her be picketed out apart from all other animals, and have as much cold water to drink as she will take, but no food and no medicine are to be given.

2.10 p.m.—Pulse 80, respirations 22. She is such a vicious kicker that the temperature of the rectum cannot be ascertained; it was with much difficulty obtained at the last report. The temperature of the mouth now is $106\frac{3}{5}°$. Blood continues normal. Drank a bucketful of water.

4.30 p.m.—Pulse, respirations, and temperature of the mouth as at last report; but the blood is changed in this respect: there is now a very large proportion of small red corpuscles, many of them not half the normal size.

7.25 p.m.—Pulse 84, respirations 24, temperature of mouth $106\frac{3}{5}°$. There is an increase of white corpuscles in the blood, and the red discs are more disposed to run into each other—jelly-like. There are no worms, nor anything likely to develop into a worm, in the drop of blood under observation. I have obtained a fair sample of the blood each time, and examined every drop thoroughly. I am positive the worms are absent.

9.30 p.m.—No change.

March 3rd. 7.15 a.m.—Pulse 97, weaker; respirations 27. Temperature cannot be obtained, because the mare will not keep the mouth closed long enough. She kicked both heels as high as my elbow when I attempted to test the rectum. There is nothing yet in the general appearance to indicate Malignant Fever. She does not look very dull; there is no swelling at the throat, and no discharge from the nose. But, in addition to the high temperature first reported, the blood is now characteristic. I find, however, only a very few of the worms,—only one or two can be seen in the fluid at once; and in passing the slide from side to side sometimes there will be no worm in

view. I do not think there were more than twenty in the drop of blood altogether.

9.30 a.m.—Pulse indistinct at the jaw, 112 at the heart. Respirations 40; temperature cannot be obtained.

10.5 a.m.—Lay down for the first time after coming in. Bowels act well to-day and yesterday; the urine also is said to be very high-coloured, but the "syce" failed to catch any for me to examine. Expression drooping.

10.15 a.m.—Got up again. She was quiet when down, and did not show any sign of pain in the bowels.

12.15 noon.—Blood: worms now swarming in every drop, and in every part of the slide. The blood-corpuscles behave as they did in the other cases. It is wonderful how the blood has altered since early morning. Pulse indistinct at the jaw. The temperature cannot be obtained. The gums and the margin of the tongue are blue; the mucous membrane of the eyes and nose of a dirty-red tinge. No swelling at the throat, no discharge from the nose. She flinches when the skin is pinched, and the blood flows from the wound more than it did in the other cases, but not so freely as it did in this case yesterday. She looks very dull now, and is restless.

1.15 p.m.—Failed again to obtain the temperature.

2.55 p.m.—Died. The farrier-sergeant came to me at 2.40 p.m., to say that a sudden change had come over the patient. She was "all in a tremble, and struggling to breathe." I was with her by 3 p.m., and found the temperature of the rectum to be $103\frac{3}{5}^{\circ}$ five minutes after death.

Autopsy, at 4.20 p.m.—Temperature of the rectum remained still at $103\frac{3}{5}^{\circ}$. Body well nourished. The peritoneum was of a pale red all over; there was a little more than the normal amount of serum in all the serous cavities, and red patches on the pleura costalis. The kidneys were congested, and imbedded in a large mass of jelly-like exudation; there was also a mass of similar exudation at the commencement of the colon. The spleen and liver were congested, also the mucous lining of the cæcum and colon. Patches of sub-endocardial exudation of black blood were present in both ventricles of the heart. Both lungs were congested; the bronchi of the right lung throughout

were choked with a red frothy mucus; this did not extend higher than the bifurcation of the trachea, and the bronchial tubes of the left lung were rather dry, the mucus in them was thick and viscid, and of a yellowish-white colour. The mucous membrane of the larynx was congested, but there was no exudation in the neck.

Microscopic Post-mortem Examination.—In the liver and kidneys I found a few blood-worms, but from ten to twenty times as long, and broad in a smaller proportion. The largest were in the liver. I failed to get any scrapings in these organs without some blood, and the blood everywhere had worms in it. These long worms had probably been conveyed to the liver and kidneys by the blood.

In the red frothy mucus of the right lung, there was of course much blood and blood-worms, but there were comparatively few of the coiled lung-worm I described in the last case. There were, however, many uncoiled worms, and also much broken up elastic fibre of the lung tissue, which I had not found in the previous case.

In the left lung I found the viscid mucus free from blood, but in it were imbedded dense masses of the blood-worms, as well as of the coiled lung-worms. They seemed to be in separate groups, but in each colony of blood-worms there were some coiled lung-worms, and likewise the colonies of lung-worms had some of the blood-worms among them. In this mucus, also, I found broken down elastic fibres.

On treating the mucus with liq. potassæ, I saw some of the lung-worms uncoiling and coiling again; their ends were abruptly tapering. I did not see any of the coils as large as I found them in the other case. Many of the blood-worms found in the mucus free from blood, became distinctly beaded within after treating with liq. potassæ. Many of them, also, had the disposition to unite to each other endwise.

[At the commencement of May, we received eight slides with dried blood, as well as some bronchial mucus in alcohol, from the horse alluded to above. These were sent to show the "blood-worms," the "coiled lung-worms," and "broken-up elastic lung-

tissue." A most careful microscopical examination was immediately made of the blood and mucus, but nothing whatever in the shape of "worms" could be detected in either of the fluids, though great patience was exercised in the search for them. But, strange to relate, myriads of the *Bacilli* peculiar to Anthrax were found in every drop of the fluid submitted to examination—some in the fructification stage. They were most numerous, perhaps, in the bronchial mucus, and in both fluids they offered exactly the same characters,—proving that in the blood they were not the *Bacilli* of putrefaction, as indeed their appearance unmistakably demonstrated. To corroborate the absence of "worms" and the presence of *Bacilli,* the blood and mucus were examined by Dr. Thin, one of the most competent micrographists in England, and Professor Duguid inspected the blood. Both agree in the result arrived at. We shall subject the blood to inoculation tests.]

GOITRE IN THE HORSE.

BY A. SPREULL, M.R.C.V.S., DUNDEE.

THE discussion which took place at the meeting of the Central Veterinary Medical Society, held on 7th February last, and which appeared in the *Veterinary Journal* for May, prompts me to send the following notes of a case which occurred in my practice here in October 1876, and which you are at liberty to publish, should you think them of sufficient interest.

The particulars of the case are as follows: In the latter part of the month of September, or the beginning of October of the year mentioned, I was requested by a gentleman in this neighbourhood to examine his chestnut carriage-mare, and let him know my opinion of an enlargement which had grown upon the "upper part of the windpipe." I accordingly did so, and at once came to the conclusion that she was the subject of Goitre, and that the tumour was in reality an enlargement of the thyroid gland.

I thereupon informed the owner of this fact, and having ascer-

tained from him that the tumour, though for years of little or no consequence, had of late been gradually enlarging, and more and more affecting the mare's respiration, by pressing upon the larynx and upper part of the trachea—thereby constricting the calibre of that tube, and obstructing the free passage of the air in its course to the lungs, I at once and unhesitatingly accompanied my statement with a recommendation for the excision of the diseased gland, notwithstanding the fact that it was already of such size as, from the mere force of its gravity, to hang down almost in the median line of the neck, while the superior surface or root extended upwards, and was deeply embedded under the terminal divisions of the carotid artery and jugular vein of the left side,—and here it was also most intimately and extensively attached to the muscular tissue of that region.

In consequence of the danger of the operation, consent was in the meantime withheld; but as time wore on, and the animal was gradually becoming worse, I was at last requested to perform the necessary operation.

Accordingly, on 20th October, I had the mare cast and laid upon her right side; and having got her properly secured, proceeded to make a longitudinal incision parallel to, and just alongside of, the median line, on the inferior aspect of the neck, and extending along the whole fundus of the tumour from above downwards; and thereafter carefully dissected it away from all its attachments. The portion most firmly attached being that in contact with the upper extremities of the sterno-thyro-hyoideus and sterno-maxillaris muscles, and as at this point it also stood in intimate relationship with the carotid artery and jugular vein, the utmost circumspection had to be observed in this portion of the work. So soon, however, as this part of the dissection had been got over, the difficulty at once vanished; as the finger and thumb nails easily separated all the other attachments, which seemed only to be composed of the cellular tissue surrounding the gland, and required nothing more than a little manipulation with the fingers to scoop it out of the bed of fascia, in which it was lodged.

This being successfully accomplished, the next thing calling for immediate attention was the arrest of a rather serious venous

hæmorrhage; and this was speedily effected by the substitution of a large pledget of tow, saturated in a weak solution of tinct. ferri perchlorid., for the tumour removed, and the wound was then sewn up with the continued suture. On the third day the pledget of tow was removed, and the stitches replaced in the skin, to keep it together; but by this time a very considerable amount of œdema had collected in front of the sternum and under the chest, having gravitated downwards to this situation from the seat of operation, and causing the owner a great deal of unnecessary anxiety. On the eighth day I again visited her, and found the œdema entirely gone, and the healing process so far advanced in the wound that I was surprised at the rapidity with which it had healed: in fact, it was so nearly whole that I did not consider it necessary to again visit her. After this date she progressed favourably, and in less than another week she was at work as well as ever she had been, and almost without a single trace of the operation having been performed.

The tumour itself was ovoid in form, rather more than two pounds in weight, and on making a section of it, it was found to be covered by a dense fibro-vascular sheath of a smooth glistening appearance, in which it was completely enveloped. The interior, which represented the original gland itself, was of a beautiful yellowish-white colour, and had every appearance of being composed entirely,or nearly so, of fat cells—with, however, a very delicate stroma or matrix of what appeared to be fibrous tissue, but which no doubt was the original structure of the gland, intersecting it in every direction between the interstices in which the fat globules were deposited, and giving, throughout the whole mass, the dense and firm, yet unctuous feel of a regular steatoma.

I regret that I did not examine it microscopically, as it might have been more satisfactory, and would no doubt have confirmed my opinion as to the exact nature of the deposit which had taken place therein, as above stated.

COMPLETE TORSION OF THE CERVIX UTERI (WITH CONSIDERABLE THICKENING AND DILATATION OF THE OS) OF A COW.

BY PROFESSOR WALLEY, ROYAL (DICK'S) VETERINARY COLLEGE, EDINBURGH.

Subject.—Small Danish cow, which had been landed from Copenhagen on the 7th, and purchased in Edinburgh by a Leith dairyman on the 8th of March. She travelled to Leith, and shortly after her arrival lay down—never after rising.

My attention was directed to her on the 13th of March. I was informed that since purchase she had eaten very sparingly—had, in fact, been supported mainly on gruel.

On external manipulation, I discovered that the uterus contained a very large fœtus; and suspecting that this had something to do with the paralysis, I made a vaginal exploration, which resulted in the detection of torsion of the cervix uteri. I was only able to pass two fingers, and that in a half spiral manner from left to right. Rectal exploration confirmed the diagnosis, and also revealed the further fact that great thickening of the cervix had taken place. As my patient was in a very exhausted condition, and as I had not sufficient assistance, I determined to delay operative interference for several hours, supporting her in the meantime with stimulants and gruel.

Deciding upon attempting reduction of the twist by version, or, failing this, by making an incision through the abdominal walls and introducing my hand into the abdomen, I proceeded, in the evening, with the aid of several students, to carry out my intention. The animal was turned twice completely over, from left to right (in the same direction as the twist), with the effect of nearly reducing it; but on proceeding to turn a third time, I discovered she was dying, death taking place in a few minutes afterwards. After death I had the body turned once more, when I found that the torsion was completely reduced, but that the os and cervix were thoroughly occluded by new material deposited in their structures.

Autopsy.—Unfortunately, I could not be present when the carcase was dressed; consequently, I only saw the uterus and its

contents after removal from the body, and was thus prevented from making any investigation as to the condition of the ligaments. The uterus contained a large, fully-developed fœtus, with placenta and uterine fluids; its coats were extensively thickened throughout, its bloodvessels engorged with coagulated blood, and its lymphatics with lymph: the seat of the torsion was indelibly marked by the blanched, compressed, and twisted condition of the structures of the involved parts. The cervix, anteriorly to the torsion, was thickened to the extent of several inches all round, the vaginal coats normal, and its large vessels empty; the large vessels of the uterus (arteries and veins) contained immense, firm thrombi. There had been no interference with the rectum, such as is usually seen in these cases, from involvement of the recto-uterine folds.

The cause of the lesion, or the length of time which it had been in existence, I had no means of determining; but from the thickened and indurated condition of the cervix uteri, I am of opinion that it must have been present for several weeks. Had the animal been strong, and the os and cervix uteri normal, I entertain no doubts as to the success of operative interference.

DIFFUSE SPERMATIC ANEURISM.

BY THE SAME.

Subject.—A Danish bull, rising three years old. My attention was directed to this animal by the enormous size of its scrotum. It was three times the normal bulk, and about eighteen inches in length.

On manipulation, I quickly discovered that I had to deal with aneurism of the left spermatic artery, although I had never seen or heard of such a case before, either in man or animals; indeed, I look upon it as unique in our list of aneurisms.

The skin of the scrotum was slightly reddened, increased in temperature, and attenuated; its surface on the left side was irregular (nodulated), the irregularities corresponding to the coils of the artery, which in several places was interruptedly dilated. On the application of slight pressure with the finger on the

surface of these elevations, a distinct purring thrill was detected; and, by auscultation, a humming *bruit*.

Pulsation in the artery was distinctly visible to the eye—the pulsations numbering 86 per minute, and synchronous with the heart's action. There was very slight fever, although the animal evinced signs of much pain by uneasy movements and abduction of the near leg, and by lameness in progression. He was in very fair condition.

The right testicle was normal; the left was considerably reduced in size, and its vaginal sac contained a small quantity of fluid, as detected by fluctuation: it was forced upwards and inwards by the pressure of the aneurism.

Immediately on the death of the animal, I removed the scrotum and testicles *en masse*, and as close to the abdomen as possible, when the mass very quickly shrank to half its original size, owing to the artery being emptied of its blood.

Careful examination of the abdominal portion of the artery showed that it was dilated up to its origin, but there was no evidence of cardiac or other vascular derangement in any other part of the body.

My colleague, Professor M'Fadyean, undertook the injection of the artery, in which he succeeded very well, the wax returning by the vein; subsequently, that gentleman assisted me in the dissection of the specimen.

The right testicle and bloodvessels were found normal, the left considerably atrophied and bent at an acute angle at the globus major, the globus minor being superiorly placed. No wax was discoverable in any of the vessels of the testicle itself—showing that they had been occluded by the malposition, and thus accounting for the atrophy. The vaginal sac contained two or three ounces of straw-coloured serum. The wax had passed into the spermatic vein, which was thoroughly injected. Slight hæmorrhage had taken place in the coats of the artery at the seat of one of the dilatations. When dried, the artery with the testicle weighed 27 oz. Allowing $1\frac{1}{2}$ or 2 oz. for dried structures, the quantity of wax contained in the artery would be 25 oz.

The enormous coils give the specimen a remarkable and interesting appearance.

Editorial.

THE NEW VETERINARY WARRANT FOR THE ARMY.

THE promulgation of the long-expected and anxiously-looked-for Warrant of the Army Veterinary Department, which we have great pleasure in publishing in the present issue of the *Journal*, must be a cause of congratulation to those members of the profession at present in the Service, and a source of satisfaction to those who contemplate entering it, as well as to the profession at large, which cannot but rejoice at every advance made in its welfare—even when this advance only directly operates to the advantage of a portion of its body. It is another proof that the profession is steadily gaining ground and obtaining recognition, not only from the public, but also from the Government of the country; and it will, we trust, be a great encouragement to those who are labouring to the utmost of their power for the proper and rapid development of our science.

For many years it has been felt that army veterinary surgeons were badly remunerated while on full pay, while their prospects on retirement were the reverse of bright or encouraging. Indeed, so unsatisfactory has been the pay and position of the profession in the Service, that it offered no inducement for suitable men to join, when the attractions and remuneration of civil practice were so tempting. Consequently, no candidates have offered themselves for a considerable period, and the Department, owing to deficiency in numbers, has been greatly overworked and inconvenienced; while it was far from being in such a state of efficiency as an impending war with a great European power requires.

The last Warrant, issued in 1859, did, no doubt, prove advantageous to army veterinary surgeons of that period, and much more so to the senior than the junior officers; but it was soon discovered—from reasons which we need not here mention—that it left room for uncertainty, dissatisfaction, and complaint. The new Warrant, just published, is an attempt to remove some of the grievances brought forward from time to time, and to offer an inducement to the most eligible graduates to join Her Majesty's army.

It is unnecessary to refer to the defects of the previous Warrant, or to compare it with that now introduced. We may therefore briefly notice the provisions of the latter, and make a few comments upon them as a whole; reserving to ourselves the right and the privilege—as representing the army as well as civilian veterinary surgeons—of future criticism of the Warrant, should occasion require it.

After a thorough examination of the candidates (who must not be more than twenty-six years of age), as to their moral, physical, and professional fitness for the Service, if successful, they will have to serve a probationary period not exceeding six months, in order still further to ascertain whether they are likely to be worthy of retention. If not suitable, then they will be dismissed; but if the probationary interval has been passed to the satisfaction of the authorities, the veterinary

officer will receive a commission for the limited period of ten years' service, with the relative rank of lieutenant and a salary of £250 per annum. In addition, he will be allowed forage, or a sum of money in lieu thereof; as well as free quarters, fuel and light, a servant, and other advantages of a minor character. Hitherto, in cavalry, the veterinary surgeon has had to pay 8½*d.* per day for each of his horses' forage; and this, together with the other heavy expenses incurred in this arm of the Service, have of late years rendered cavalry very unpopular to the veterinary surgeons. Now, however, that the Warrant sanctions free forage, one of the causes which made it the least sought-for branch will have been removed.

At the expiration of the ten years, should the veterinary officer desire to return to civil life, or should his services be no longer required by Government, he will receive a gratuity of £800.

With regard to the latter point, it will be observed that at paragraph 14 of the Warrant, the Principal Veterinary Surgeon of the army has the power of retaining in the Service four of the ten-year veterinary surgeons every year. At present, the number of annual admissions will be about six; while the casualties under ordinary circumstances—from voluntary retirements and other causes—would probably leave only four of these six at the end of ten years. So that, as a rule, it will be entirely the fault of the veterinary surgeon himself if he is not retained for further service; as Government will, undoubtedly, be desirous of keeping those of proved zeal and ability. If remaining for renewed service—a condition optional on both sides—the veterinary officer then comes on the scale of *daily pay* given in the Warrant; and on completing a total of twelve years' commendable service, he will be promoted to first-class rank.

Now, we have reason to believe that in the draft warrant submitted by the Principal Veterinary Surgeon, it was proposed that promotion to this grade should be given after ten years' service. This period, however, is extended to twelve years, and is a serious hardship to all those veterinary surgeons who entered the army on the faith of the Warrant of 1859, which stated that they were eligible for promotion to first-class after five years' service. Of course, this was taken by them, very naturally, to mean that the period would certainly not be exceeded by more than three or four years. Therefore these veterinary surgeons, and particularly those in India, find that the new Warrant operates injuriously on their pecuniary prospects. We are certain that it would relieve much heart-burning and disappointment if the authorities would give early and favourable consideration to the case of these gentlemen. Promotion at ten years would be fair and equitable, and it cannot be too much to ask for, when we know that medical officers obtain the same relative rank of captain at four years' less service—namely, six years. Hitherto, promotion to first-class has generally been given at about eight to ten years' service—though some unfortunates, for no fault of their own, have not received it for twelve or even more years.

We understand that veterinary officers who entered the Service prior to the publication of this Warrant, will remain regimental officers as hereto-

fore; and that those who may be retained after completing ten years' service, may also be gazetted to corps. This, we think, is a very wise and necessary measure; as, otherwise, veterinary surgeons, if merely attached to their regiments, would lose what has hitherto been a boon to them, and the deprivation of which, to medical officers, has constituted a serious grievance—they being no longer a part of their corps.

The conditions of retirement and rates of retiring allowance must also be considered, on the whole, satisfactory. The higher rate for Inspecting Veterinary Surgeon (a very much better designation than that of "Staff" conferred by the previous Warrant) shows a substantial increase of £109 10*s.* per annum over previous rates for home service. In India the pay amounts to about £1600 a year. The other grades are in proportion. We cannot understand, however, why the pay of the Head of the Department should be fixed at the meagre sum of £750 a year, inclusive of all allowances. It must be evident that such a salary is totally inadequate, when we consider the position of the Principal Veterinary Surgeon, the importance of his office, and the onerous and responsible duties he has to perform. We trust that the Government will not delay in increasing it to at least £1000 per annum, and thus make the post worthy of acceptance by those who have to fill it. At present the pay is below the amount received by the senior Inspecting Veterinary Surgeon.

It will also be noticed that retirement can be claimed after twenty years' service; and this is a concession which, if we mistake not, has long been clamoured for, and with good reason,—though we doubt if many will now take advantage of it.

Looking at the Warrant in its entirety, we incline to the opinion that its terms are fair and liberal, and that they are likely to attract some of the best and most promising graduates. The army offers advantages of a kind which civil practice does not—though we cannot overlook the fact that it has also its disadvantages; but, nevertheless, to those who desire to occupy a good position (especially if they have private means), are desirous of cultivating the higher branches of their science, and are bent on usefully employing an otherwise agreeable career, it is to be recommended.

True, army veterinary surgeons still labour under disabilities which will, we trust, soon be removed, as they are derogatory to the status of men of education and science, as well as to the position of officers holding Her Most Gracious Majesty's commission: such as their disqualification for presentation at Court—a privilege the youngest sub-lieutenants, as well as medical officers, enjoy; while good service pensions, awarded to every other class of officers, are also denied them.

But we may rest assured that the present head of the Department, to whose unceasing and strenuous exertions the new Warrant is due, and who well deserves the warmest thanks of the profession for bringing his efforts to a successful termination, will continue to agitate until these disqualifications and all invidious and most unmerited exceptions are abolished. The new Warrant may be imperfect in some things, and may not contain others which those whom it concerns would desire, and

to which they think they have a just claim; but it must be allowed that it at least goes a good way towards getting rid of well-founded complaints. If it be discovered that some of its provisions are unpopular to such an extent as to deprive the army of good men—for none other should be admitted—then no doubt alterations and modifications will be made. In these days, such Warrants are but temporary devices to secure the best men on the most advantageous terms for the country; and as economy—not always well-advised—is the ruling principle in framing them, circumstances are continually occurring which necessitate changes and improvements. Far too long an interval—nearly twenty years—has been allowed to elapse between the issue of the previous Warrant and the one we have been noticing. We venture to predict that another Warrant will not be so long in making its appearance, notwithstanding the marked benefits the present one confers.

THE MODE IN WHICH DEATH IS PRODUCED IN ANTHRAX.

THE result of the experiments undertaken recently have demonstrated that *Bacteridiæ* or *Bacilli* are the cause of Splenic Fever or Anthrax. Pasteur and Joubert have quite lately stated that the *Bacteridiæ* produce asphyxia by removing from the red globules of the blood the oxygen necessary for hæmotosis; and such was also the explanation given by Professor Toussaint, of the Toulouse Veterinary School, in a paper presented to the *Académie des Sciences de Paris*, by M. Bouley in August last. In another note, presented in December, Toussaint mentions that he had again occasion to study this disease, and his attention was then more particularly directed to the mechanism of death, or the mode of action of the *Bacteridiæ* introduced into the circulatory system. The results of his experiments on rabbits he gives in this note.

The blood which he used in his first experiment was obtained from a sheep which had died with all the symptoms, and the carcase of which had all the appearances, of *Sang de rate* (Splenic Apoplexy). The malady had been produced in this sheep by inoculating it with the blood derived from a diseased horse, which had died at Narbonne, at the same time as twelve of its stable companions, three mules, and a certain number of sheep.

The blood of the sheep, examined between seven and eight hours after death, contained a great quantity of variable-sized *Bacteridiæ*. The majority were already divided in their length, and they had a tendency to become reduced into germinating corpuscles. A rabbit was inoculated with this blood, and the creature died in fourteen hours.

In the succeeding experiments for inoculation he employed the blood of experimental animals which had recently perished. In general, these succumbed between the twenty-first and twenty-fourth hour after inoculation.

A knowledge of the almost exact period at which death took place was of great assistance to Toussaint in his observations, as it allowed him, after a few trials, to have the animals die during the day, and thus to render an examination of their bodies more easy.

The first object was to verify the hypothesis entertained as to death being due to asphyxia of the blood globules. For this purpose, a rabbit which was exhibiting serious symptoms was placed under a bell glass, the air of which was sufficiently charged with oxygen to rekindle an almost extinguished

match, and fresh quantities of oxygen were constantly introduced, an aspirator establishing a current in the glass. The animal placed in these conditions died in about half an hour, without any noticeable effect having been produced by the gaseous mixture. A second rabbit, not so ill, succumbed in about three-quarters of an hour; the only thing remarked was a showing of the respiratory movements, which fell from ninety to fifty per minute. In fact, respiring an atmosphere strongly charged with oxygen did not seem to Toussaint either to accelerate or delay a fatal result. Artificial respiration, practised on two other rabbits, did not yield any result.

After these experiments it appeared difficult to this investigator to accord to asphyxia, through deficiency of oxygen, so important a part as it recently had allotted to it; nevertheless, the symptoms observed in the inoculated rabbits were certainly those of slow asphyxia—they died in a state of coma, without the slightest convulsion.

The capillary system was then investigated; and a thin transparent membrane—such as the omentum or mesentery—was subjected to microscopical examination immediately after death. Extremely important lesions were noted. A large number of capillaries were filled with *Bacteridiæ;* in many of them the vessel was so obstructed by these particles that blood corpuscles could not be seen; often, even, the vessels were not discoverable save by the presence of the *Bacteridiæ*, which marked their course as if they had been injected. The arterioles themselves were obstructed by masses of *Bacteridiæ*, behind which the blood corpuscles were accumulated. An examination of other parts of the body led to the discovery of lesions of the same nature; the intestinal villi were found to be injected at their summit with a mixture of blood and *Bacteridiæ*, while very many of the capillaries at their base were entirely filled with these bodies. The bloodvessels of the brain were almost destitute of blood; the extremely fine capillaries contained but few *Bacteridiæ*, though they were in great numbers in the more voluminous vessels.

The most complete and by far the most important lesions were, however, found in the lungs. On opening the thoracic cavity, these organs were found to be incompletely collapsed; in a great number of points they were emphysematous; their colour was grey, and the air-vesicles and bronchi were full of foamy mucus. A small portion of lung being teazed out under the microscope, exhibited scarcely anything more at the first glance than a matting together (*feutrage*) of *Bacteridiæ*. On more attentively examining some non-effaced alveolx (those still containing air were not less instructive), Toussaint succeeded in isolating a layer of vessels, the limits of which were indicated by the *Bacteridiæ* that filled them. These rod-shaped bodies literally injected and crammed these vessels; they lay in every direction, and gave the capillary network quite a peculiar aspect; there were very few blood-corpuscles among them. A preparation of healthy lung being compared with this diseased portion rendered the lesion still more striking.

Toussaint is of opinion that the lesions above described are sufficient to account for death occurring. In the diseased rabbit there is almost complete obliteration of the pulmonary bloodvessels, and, consequently, great difficulty in the blood passing from the right side of the heart into the left. It is also remarked that when the chest of an inoculated animal, on which artificial respiration has been practised, is opened, the right side of the heart and the large venous trunks are found to be extremely distended, while the left side contracts in an almost empty condition. The arteries are contracted, and section of large vessel—as the radial artery—only yields an insignificant jet of blood; and the intercostal arteries often do not bleed at all,—opening the thoracic cavity is a bloodless operation. In fine, the right side of the heart is not emptied, and experiences a gradually increasing difficulty in contracting;

it ceases to contract long before the left side of the heart. Vascular emboli are, therefore, the immediate cause of death.

The formation of these emboli may be observed in the living rabbit. After fixing the creature, and withdrawing a portion of its omentum from the abdominal cavity, the circulation of the blood can be observed through this membrane, the transparency of which allows of the employment of any objective necessary. In this way one may observe for an hour or more a beautiful sight, which in this instance has an altogether special interest from the presence of the *Bacteridiæ*, and the formation of the lesions just described —the process of development of which the observer can follow with ease. The *Bacteridiæ* become retarded in the most eccentric loops of the capillaries, move on again, once more accumulate, and finally finish by remaining fixed altogether in the vessel, where their elongation may be watched on the spot. As the obstruction becomes complete, the circulation through the canal is slackened, and soon becomes impossible. Some time before death it is almost *nil* in the larger vessels of the mesentery. The viscidity of the blood corpuscles, which is readily observed, even in the vessels, should also contribute to increase the difficulty in maintaining the circulation.

To sum up, Toussaint is of opinion that observation proves that in Anthrax in the rabbit death is the result of obstruction, caused by the *Bacteridiæ*, of the capillary vessels, and particularly those of the lungs ; *the asphyxia has, therefore, a mechanical cause.* There is, at the same time, a partial or total loss of the properties of the tissues, and more especially of the functions of the nervous system.

EXPERIMENTAL INVESTIGATIONS IN ANTHRAX FEVER.

FOR a long time past, attention has been directed in a most marked manner to the disease known as Anthrax Fever or Anthrax—the *Milzbrand* of the Germans, and *Charbon* of the French ; and not only have the numerous investigations made with regard to it been instituted to discover its causes, and the best means for preventing its development, but also with a view to discover upon what its existence really depends. We have brought the subject prominently before the readers of the *Veterinary Journal* on many occasions, and quite recently have given the results of the latest researches, which have an important bearing not only upon the etiology of this malady, but also upon that of some other serious diseases, and particularly upon the "germ theory" of disease, which is now being so warmly discussed. In this direction we have afforded our readers an opportunity of learning the views of Pasteur, Koch, Bollinger, Semmer, and others ; and we also gave an excellent *resumé* of previous knowledge of the subject, drawn up by Dr. Burdon Sanderson. The interest excited by the disease on the Continent is far from abating, and the veterinary and other scientific journals are continually publishing the results of observations and experimental researches, made either by veterinarians or other scientists.

We are now about to allude to a series of experiments, a notice of which was published in the *Zeitschrift für Thierheilkunde*, for 1877 (p. 218). These were carried out at an experimental station established by the Bavarian Government at Lenggries, Upper Bavaria, for the special study of Anthrax Fever, the founding of the establishment being due to the initiative of Professor Feser, of the Munich Veterinary School. The results of the proceedings at this station are compared and co-ordinated by a special commission which holds its sittings at Munich, and although the station was only com-

menced at the beginning of September, 1876, the number of experiments made before the end of that year amounted to no less than two hundred: these were conducted upon the larger and smaller domestic animals. Seventy-two of these were carried out at Lenggries or its vicinity, the others were conducted at Munich; they were made upon eighty-four animals—5 horses, 11 cattle, 35 sheep, 6 goats, 12 dogs, 4 fowls, 4 pigeons, 2 rabbits, and 5 fishes. The detailed results of the experiments Feser reserves for future publication.

At the commencement of Feser's stay at Lenggries he attentively examined the pastures on which Anthrax Fever most frequently appeared, and he discovered so many of the lower organisms thereon, and of such varied characters, that he found it impossible to describe them all; in fact, he asserts that the life of a man would not be sufficient to make a complete study of these organisms, the majority of which were of microscopical dimensions. He noticed, however, that nearly all the vegetation on these pastures was charged with rust, smut, or moulds of the most varied kinds, and that everywhere—even on the most elevated lands—the ground was swarming with bacilli or bacteria.

It results from the observations and experiments of Feser that the rust fungus, so frequent in certain countries and during certain years, has no influence in the production of Anthrax. The white mucilaginous mass resembling the honey dew of barley, and which is found every year in the marshes and marshy places of the pastures of Upper Bavaria, infected with the Anthrax disease, was more particularly suspected by Feser, and specially attracted his attention. The labours of Koch and Cohn, to which we have alluded some months since, have since amply confirmed the suspicions entertained by Feser; for it has been ascertained that the mucilaginous matter is made up of the *Bacillus subtilis*, the form and development of which are almost identical with those of *Bacillus anthracis*. When the rods of the latter vegetate abundantly, they give rise to a mucilaginous mass which either cannot, or only with the greatest difficulty, be distinguished from the analogous masses found on the pastures. At a certain stage of their development the bacilli of the last-named masses only appear as immovable rods, differing in no respect from those of the Anthrax fungus; but when they are more developed they become a little mobile, and at a more advanced period in their evolution they resume their former mobility, and form spores exactly in the same way as do the Anthrax bacilli (Koch), and the bacilli of hay (Cohn).

These marsh bacilli, as well as those of hay, are in all probability foreign to the etiology of Anthrax, according to the experiments of Feser; but because of their analogy to the bacteria of Anthrax, a study of them may furnish useful indications in researches undertaken to fix the characters, etc., of the latter. As these marsh bacilli, so like those of Anthrax, are developed, multiply, and infest damp, hot, and marshy pastures, it is admitted as probable that the same happens with the Anthrax bacteria, and that the white mucilaginous masses before mentioned should be suspected as masses of the latter until there is proof to the contrary.

In the soil of the pastures on which Anthrax Fever prevailed other bacteria were found which, unfortunately, are always more or less mixed with other of the lower organisms; among these is the *Bacterium termo* (the ordinary bacterium of putrefaction), which is, in all likelihood, the cause of Anthracoid Emphysema, according to the experiments of Feser.

Feser is inclined to believe that Anthrax Fever does not appear on the pastures of the Alps of Upper Bavaria, except as a consequence of the importation of diseased animals, and that the Epizoöties so produced may subsequently extend more or less rapidly; he gives various reasons for this opinion.

The inoculation experiments made with the *débris* from animals which had died of Anthrax Fever yielded only negative results. The carcases of animals which had been buried for periods varying from four days to a year were found to have lost the power of transmitting the disease. In this respect they were like any other humid anthracoid matter. This fact is readily explained, if it is admitted that in the fresh remains of Anthrax-stricken animals there are only the Anthrax bacilli, from which the spores are absent; the former are destroyed within a few days in moist Anthrax substances.

It remains to be seen whether all Anthrax-affected carcases comport themselves in this way, and to determine what is the special influence which, in a given case, the condition of interment may exercise. To this end experiments were projected, which were being carried out at the Munich Veterinary School when Feser drew up his report. He has repeated Koch's experiments with regard to the development of the *Bacilli anthracis*, and fully confirms the correctness of the facts advanced by that excellent observer. He also infected, or attempted to infect, animals by different channels—particularly by the conjunctiva, vagina, digestive tract, respiratory passages, and by the skin. According to his experiments, dogs, fowls and pigeons resist the action of the Anthrax contagium; sheep, goats and cattle are infected by food which horses can consume with impunity; the inhalation of matters charged with the Anthrax spores rarely produces Anthrax; fish resist the action of Anthrax blood; the fœtus of animals affected with Anthrax Fever is not infected by the contagium; severe cold is favourable to the preservation of Anthrax contagium; skins steeped in water maintain their virulence for several days; in sheep, during life, the *Bacilli anthracis* and their spores are found, and these are eliminated, *en masse*, by the urinary organs, etc.

THE NEW ROYAL WARRANT OF THE ARMY VETERINARY DEPARTMENT.

THE following are the terms of the new Warrant for the Veterinary Department of the Army, alluded to in the editorial article :—

"VICTORIA R.

Whereas we deem it expedient to alter the terms and conditions of service in the Veterinary Department of our army;

Our will and pleasure is that Articles 409 to 415, and 1023 to 1026 of our warrant of 27th December 1870, and Article 143 of our warrant of the 13th August 1877, so far as it applies to veterinary surgeons, be cancelled, and that from the 1st April 1878, the following rules shall be established and obeyed as the sole and standing authority on the matters herein treated of.

1. The ranks and rates of pay of the officers of the Veterinary Department of our army shall be as follows :—

	Daily. £ s. d.
Principal Veterinary Surgeon .	£750 a year, inclusive of all allowances.
Inspecting Veterinary Surgeon	1 5 0
After 25 years' service	1 7 0
,, 30 ,, ...	1 10 0
Veterinary Surgeon of the 1st Class	0 16 0
After 5 years' service as such	0 18 0
,, 10 ,, ,, ...	1 0 0
,, 15 ,, ,, ...	1 2 0
,, 30 years' total service	1 4 0
Veterinary Surgeon on appointment	£250 a-year.

	Daily. s. d.
Veterinary Surgeon appointed before the date of our present Warrant—	
Under 5 years' service	10 0
After 5 years' service	12 0
After 10 years' service	14 6

2. The pay of officers of the Veterinary Department shall be issued monthly in arrear.

3. The relative rank of the officers of the Veterinary Department shall be as follows :—

I. Principal Veterinary Surgeon shall rank as Colonel.

II. The Inspecting Veterinary Surgeon acting as Principal Veterinary Surgeon in India shall rank as Lieutenant-Colonel.

III. Inspecting Veterinary Surgeon shall rank as Major ; but junior of the rank, except for choice of quarters.

IV. Veterinary Surgeon, 1st class, shall rank as Captain.

V. Veterinary Surgeon shall rank as Lieutenant.

4. The relative rank of these officers shall carry all precedence and advantages (except as regards forage allowance, and in certain cases choice of quarters), attaching to their corresponding military rank, and shall regulate detention and prize-money, allowances granted on account of wounds or injuries received in action, and pensions and allowances to widows and families.

5. Forage, or the pecuniary allowance in lieu thereof, shall be granted to an officer of the Veterinary Department for the number of horses necessarily kept by him for duty.

6. A candidate for the Veterinary Department shall possess the diploma of the Royal College of Veterinary Surgeons, and shall be required to pass an examination before a board of military veterinary surgeons, and fulfil such further conditions as may be prescribed from time to time by our Secretary of State.

7. A candidate who shall have proved after examination that he possesses a competent knowledge of the required subjects, shall receive a commission as veterinary surgeon for a limited period of ten years' service.

8. The services of a veterinary surgeon appointed after the date of our present warrant shall be dispensed with on the completion of ten years' service, unless he be specially selected for further employment in the Veterinary Department, or if he be unwilling to continue to serve therein, and he shall be entitled to receive in lieu of all pension or retirement, pension for wounds excepted, the sum of eight hundred pounds.

9. A veterinary surgeon appointed after the date of our present warrant of less than ten years' service, who may be disqualified for duty by ill-health, certified by a board of medical officers to have been contracted in and by the service, may, at the discretion of our Secretary of State, be granted half-pay at the rates specified in Article 19, for a period not exceeding six months at one time. In special cases in which the circumstances may appear to our Secretary of State to call for exceptional consideration, it shall be sufficient that the disability shall have been contracted in the service.

10. At the expiration of that period of six months, if the veterinary surgeon so appointed be able to resume his duties, he shall be entitled to complete his term of ten years' service. If he be unable to resume duty, as certified by a board of medical officers, he shall, if he have not served five years, be allowed to remain upon the half-pay list for a further period of six months, without half-pay ; at the expiration of which period, if still unable to resume duty, his services shall be dispensed with.

11. If the veterinary surgeon so appointed have served five years on full-

pay, and be unable to resume duty as certified by a board of medical officers, his services shall be dispensed with, and he shall be entitled to receive, in lieu of all further pay or non-effective pay, pension for wounds excepted, a gratuity at one of the following rates, viz. :—

	£
If he shall have completed 9 years' full-pay service . . .	720
,, ,, 8 ,, ,, . . .	640
,, ,, 7 ,, ,, . . .	560
,, ,, 6 ,, ,, . . .	480
,, ,, 5 ,, ,, . . .	400

12. If a veterinary surgeon so appointed be unable to complete his ten years' service from any cause other than reduction of establishment, wounds or ill-health, certified by a board of medical officers to have been caused in and by the service, he shall be allowed not more than six months' leave without pay, at the expiration of which period, if unable to resume duty, his services shall be at once dispensed with, and he shall have no further claim on the Department.

13. If the services of an officer be temporarily dispensed with in consequence of a reduction of establishment, he shall be granted the rates of half-pay fixed by Article 19, until there be an opportunity of re-employing him, or, if he have served five years, he may retire from the service with a gratuity according to the rates specified in Article 11.

14. Every year it shall be competent for our Commander-in-Chief, on the recommendation of the Principal Veterinary Surgeon, to select, with the approval of our Secretary of State, a number of veterinary surgeons not exceeding four, who shall be retained in the service.

15. A veterinary surgeon shall be eligible for promotion to the rank of first-class veterinary surgeon on completing twelve years' service.

16. A veterinary surgeon of the first class shall serve fifteen years in our army as a commissioned officer before he shall be eligible for promotion to the rank of inspecting veterinary surgeon.

17. All promotion from the rank of veterinary surgeon to that of veterinary surgeon of the first class, and from the rank of veterinary surgeon of the first class to that of inspecting veterinary surgeon, shall be given for ability and merit, upon the selection of our Commander-in-Chief, with the approval of our Secretary of State ; and the grounds of such selection shall be stated to us in writing and recorded in the Department. In all such cases the amount of foreign service shall be expressly stated.

18. Officers of the Veterinary Department shall have a right to retire after twenty years' service. Inspecting veterinary surgeons, veterinary surgeons of the 1st class, and veterinary surgeons, shall be placed on the retired list when they shall have attained the age of fifty-five years.

Non-Effective Pay.

19. An officer of the Veterinary Department placed on half-pay by reduction of establishment, or on the report of a medical board, in consequence of wounds or ill-health caused in and by the discharge of his duties, or placed on the retired list under Article 18, on account of having attained the age of fifty-five years, shall (subject to the provision in Article 21) be entitled to half-pay or retired pay at the following rates :—

		Daily.		
	£500 a year.	£	s.	d.
Principal Veterinary Surgeon				
Inspecting Veterinary Surgeon—				
After 30 years' service		1	1	0
,, 25 ,, ,, ...		0	19	0
,, 20 ,, ,, ...		0	17	6

	£	s.	d.
Veterinary Surgeon, 1st Class—			
After 25 years' service	0	16	0
„ 20 „ „	0	13	0
„ 15 „ „	0	10	6
Veterinary Surgeon—			
After 15 years' service	0	9	6
„ 10 „ „	0	8	6
„ 5 „ „	0	7	0
Under 5 „ „	0	4	0

20. The rate of half-pay awarded to an officer retiring for his own convenience, after twenty years' service on full pay under Article 18, shall not exceed one-half of the rate of full pay of which he was in receipt at the time of retirement.

21. The rate of half-pay awarded to an officer retiring for his own convenience, after twenty-five years' service on full pay, shall not exceed seven-tenths of the daily pay he may have been in receipt of when thus retiring on half-pay, provided he shall have served three years in his rank or shall have served abroad for ten years in all ranks, or for five years with an army in the field. An officer of twenty-five years' service, whose service falls within neither of these conditions, shall be entitled only to seven-tenths of the daily pay received by him prior to his last promotion.

22. An officer of the Veterinary Department placed on half-pay from any other cause shall be allowed only a temporary rate of half-pay (not exceeding the rates specified in Article 19) for such period and at such rates as our Secretary of State shall decide, with reference to the services rendered to the public by such officer.

General Regulation.

23. In all matters not specially provided for in our present warrant, the officers of the Veterinary Department shall be subject to the general regulations for the department of our army.

Given at our Court at Osborne, this 22nd day of April, 1878, in the forty-first year of our reign.

By Her Majesty's command,

FRED. STANLEY.

ADDITIONAL REGULATIONS TO ROYAL WARRANT.

Candidates will be required to pass a medical examination as to their physical fitness for the service. They must also not be over twenty-six years of age, and unmarried.

Candidates on joining will be required to serve a probationary period not exceeding six months; if not then approved of, their services will be dispensed with.

Applications for admission to the Veterinary Department of the Army should be addressed to the Principal Veterinary Surgeon, War Office, London, accompanied by a certificate of age, and testimonials of character and qualifications.

J. COLLINS, P. V. S.

THE FITZWYGRAM PRIZE COMPETITION.

IT has been notified that the competition for these prizes is postponed to Thursday, June 13th.

Reviews.

A Course of Elementary Practical Histology. By M. Foster, M.D., F.R.S., and J. N. Langley, B.A. London : Macmillan and Co.

This is an excellent little book for the student of practical physiology, and, to some extent, of histology ; indeed, histology and physiology are closely combined, for the reason given by the learned professor of physiology at Cambridge : " Continued experience makes me more and more convinced that the plan which I adopt is, though troublesome, the safest one. Histological work, unless it be salted with the salt either of physiological or of morphological ideas, is apt to degenerate into a learned trifling of the very worst description ; and students are generally only too ready to spend far too much of their time in the fascinating drudgery of cutting sections and mounting stained specimens. In morphological questions, the physiologist has but an indirect interest, and details of microscopic structure ought only to occupy his attention in so far as they serve as a basis for physiological deductions." Therefore it is, that in this guide-book structure and function are made to go hand in hand, and in the case of each tissue or organ, as far as is practicable, the anatomy and histology are first studied, and then without delay the physiology ; so that the student, in learning what is known concerning the action of the part, may form an opinion of the relative importance of the structural details. In this way, the plan of the work closely follows that of Professor Huxley, in his " Elementary Biology." Commencing with the careful dissection of a rabbit and a dog, we come to instruction as to the investigation of the structure and properties of blood, cartilage, bone, and teeth, connective tissue, contractile tissues, nervous tissues, bloodvessels, heart, digestive and respiratory organs, as well as the depurative organs and those of sense.

The book is not only an admirable guide for the classroom and laboratory of schools, but it will also be found most useful in assisting those who are attempting to teach themselves the practical details of histology and physiology. The directions are particularly clear and simple, and the manner in which they are arranged is most satisfactory. The veterinary student will find it a most welcome addition to his list of text-books.

The Races of Mankind. By R. Brown, M.A. London : Cassell, Petter and Galpin.

The study of the various human races which inhabit the globe, is full of interest and instruction. The enterprising London publishers, in securing the remarkable talent for treating scientific subjects in a popular manner possessed by Mr. Brown, and by seconding his efforts in a lavish allowance of drawings, have favoured the public with a book which has not its equal on this particular subject. Commencing with the Eskimo, among the American races, Mr. Brown follows Latham's classification of mankind, in describing the American, Oceanic, Turanian,

Persian, Indian, African, Caucasian, and European groups or families; and no pains or research have been spared to present these in such an instructive and interesting way, that the four volumes of which the work is composed read like a fascinating romance. With the accounts of the physical and mental traits of each race, and their manners and customs, are descriptions of the regions they inhabit, interspersed with appropriate anecdotes and thrilling narratives of adventure. As we have said, the book is lavishly illustrated, the woodcuts being excellent of their kind, and many of them extremely spirited and striking drawings.

As a work to be studied, or to be read for amusement during leisure hours by busy professional men, the "Races of Mankind" is to be heartily commended. It is certain to become a very popular book.

Army Veterinary Department.

Gazette, May 7.

YEOMANRY CAVALRY, NORTHUMBERLAND.—Veterinary Surg. Clement Stephenson resigns his commission.

The services having been called for of a couple of veterinary surgeons for duty at the Cape of Good Hope, First Class Veterinary-Surg. F. Duck, and Veterinary-Surg. B. L. Glover, both of the Royal Artillery, have been selected for the duty, and have left to join the field force under the command of Lieutenant-General the Hon. F. A. Thesiger, C.B.

Obituary.

THE following deaths have been reported to the Registrar of the Royal College of Veterinary Surgeons :—

	Diploma dated
Mr. Adam P. Duncan, late Carlow, Ireland .	April 16, 1867.
„ James Rendle, Beaminster . . .	April 14, 1819.
„ William Low, Nasing, Essex . . .	Jan. 25, 1843.
„ William Cross, Colchester . . .	March 6, 1832.
„ John Milnes, late Cheltenham . . .	April 21, 1864.
„ Thomas Allan, Delvinby Carputh, Perthshire	April, 1830.
„ Frank C. Good, late Glastonbury . .	Feb. 18, 1834.
„ Allan Murray Wilson, Limerick . .	April 26, 1869.

France has lost one of its most worthy veterinary representatives, by the death of Monsieur J. B. Huzard. He was Dean of the French Central Society of Agriculture, one of the oldest members of the Paris Academy of Medicine and of the Central Veterinary Medical Society of that city. He was the author of several estimable works—among others, treatises on the unsoundness and warranty of animals, on studs, and on horse-breeding.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

ANNUAL GENERAL MEETING HELD MAY 6TH, 1878.

THE thirty-fifth annual meeting of the members politic and corporate of the Royal College of Veterinary Surgeons was held by advertisement, and in accordance with the provisions of the Charter, on the first Monday in the month of May, being the 6th day thereof, 1878, at the College, 10, Red Lion Square, Holborn, London.

Present—General Sir Frederick Fitzwygram, Bart., President, in the chair; Professors Pritchard, McCall, and Axe; James Collins, Esq., Principal Veterinary Surgeon to the Army; Messrs. J. D. Barford, T. G. Batt, F. Blakeway, J. C. Broad, James Broad, James H. Brown, G. Carless, B. Cartledge, H. J. Cartwright, W. Cawthron, M. Clarke, Albert R. Charles, John Roalfe Cox, J. B. Daniel, E. M. Davy, T. J. W. Dollar, E. C. Dray, G. A. Drew, J. C. Dwyer, H. Dyer, Wm. Duguid, Wm. Fearnley, G. Fleming, Wm. Furnivall, J. F. Gillingham, D. Gibbon, T. W. Gowing, T. W. Gowing, jun., T. Greaves, T. P. Gudgin, M. J. Harpley, W. Helmore, T. Hopkin, John Howard, C. Hunting, Wm. Hunting, R. L. Hunt, H. C. Legge, G. A. Lepper, J. Mackender, A. J. Milne, Jas. Moon, Jas. Moore, T. Moore, M. E. Naylor, J. Oliphant, Alf. J. Owles, W. F. Peacock, C. Percival, E. M. Perry, Israel Print, J. Rowe, F. G. Samson, C. C. Sanderson, H. K. Shaw, W. Smith, W. A. South, T. J. Symonds, P. Taylor, Robert Ward, C. J. Whitworth, G. Williams, Wm. Wilson, Joseph Woodger, Ed. Woodger, Jos. Woodger, jun., F. W. Wragg, and the Secretary.

The SECRETARY read the notice convening the meeting, also the minutes of the previous meeting, which were confirmed.

The following gentlemen were appointed as scrutineers :—Messrs. Percival, Symonds, Hopkin, Ward, W. A. South, and T. J. W. Dollar.

The thirty-fifth annual report was then read, as follows :

"The Annual General Meeting of the Royal College of Veterinary Surgeons was held May 7th, 1877, in accordance with the provisions of the Supplemental Charter, when the following gentlemen were elected members of Council in the place of those who retired by rotation—viz., Peter Taylor, John Cuthbert, Richard Sam Reynolds, Francis Blakeway, Benjamin Cartledge, and Matthew John Harpley.

The Council of the Royal College of Veterinary Surgeons have to report that at their first meeting, held May 29th, General Sir F. Fitzwygram, Bart., was unanimously re-elected President, and the following gentlemen were elected Vice-presidents : Messrs. S. H. Withers, Jos. Woodger, jun., H. J. Cartwright, Jas. McCall, T. Walley, and Wm. Smith ; Mr. S. H. Withers, Treasurer ; and Mr. W. H. Coates, Secretary.

The Council having elected their office-bearers, a special meeting was convened to receive the report from the Committee appointed to investigate the finances of the College.

The Committee thought it would not be advisable to attempt to increase the funds of the College by any material increase of the examination fees (which are the only source of income), especially after the tax lately laid on rejected students.

They therefore recommended a scheme for reducing the expenditure, so as to bring it within the income.

With this view they recommended that the practice of advertising the examinations in the public newspapers should be discontinued.

That no more than two examinations be held in the year.

That the number examined at each meeting of the Court be increased from nine to twelve.

That in case of broken numbers of students—*i.e.* less than twelve—the examiners should be requested to examine any number not exceeding four, on receiving a proportionate increase on the fee for the evening.

That the time given for the examination of each student should be reduced from twenty minutes to fifteen minutes.

That the fee paid by the students on the third examination should be increased from three to four guineas.

The Council, after taking into their most careful consideration the proposals of the Committee, resolved to adopt them; but some opposition having been raised to the recommendation that no more than two examinations be held in the year, it was deemed advisable that the subject should be postponed for further discussion.

The Council next proceeded to the election of a new board of examiners, notice having been given to the former Court to tender their resignation, on account of the re-constitution required by the new bye-laws.

The following is the list of examiners who were elected for the several tables at the respective examinations :—

First Examination.

Chemistry and Toxicology.

England.	*Scotland.*
Dr. A. Voelcker.	Dr. Alex. Crum-Brown.

(To examine 12 students.)

Materia Medica and Pharmacy.

Professor Duguid.	Dr. James Dunsmure.

Botany.

Professor Bentley.	Dr. Alex. Dickson.

Second Examination.

Physiology and Histology.

Dr. J. Burdon-Sanderson.	Professor Turner.

(To examine 9 students.)

Anatomy.

Mr. George Fleming.	Mr. William Robertson.
„ William Robertson.	„ George Fleming.

Third or Final Examination.

Morbid Anatomy, Pathology, and Pathological Toxicology.

Mr. George Fleming.	Mr. George Fleming.

(To examine 12 students.)

Diseases of the Horse, Veterinary Medicine, Surgery, and Therapeutics.

Mr. M. J. Harpley.	Mr. B. Cartledge.
„ William Robertson.	„ M. J. Harpley.

Practical.

Mr. M. J. Harpley.	Mr. B. Cartledge.
„ William Robertson.	„ M. J. Harpley.

Diseases of the other Domesticated Animals, Veterinary Medicine, Surgery, and Therapeutics.

England.	*Scotland.*
Mr. T. W. Mayer.	Mr. Alex. Robinson.
„ R. L. Hunt.	„ R. L. Hunt.

Practical.

Mr. T. W. Mayer.	Mr. Alex. Robinson.
„ R. L. Hunt.	„ R. L. Hunt.

The Council have deemed it advisable to extend the period of examination for those students who entered under the old rules for the two years' period of study, which was to expire at Christmas 1878, and is now extended to July 1879.

The examiners under the new system have expressed their satisfaction at the marked improvement exhibited by those who have been submitted to the more severe educational test which is now required by the new regulations.

The Council have also had under consideration the suspension of 'Bye-laws 32 and 33' for a period of three years, in order to enable gentlemen who have held the Highland and Agricultural Society's certificates for three years to obtain the diploma of the Royal College of Veterinary Surgeons by passing a second and third examination at one and the same time on payment of full fees; and that those who have obtained their certificate more recently, but prior to December 31st, 1877, shall be required to pass all three examinations at one and the same time, on payment of full fees.

This subject is still under the consideration of the Council.

The Council have to report that since the last annual meeting seventy-one students from the different veterinary schools have received the diploma of the Royal College of Veterinary Surgeons.

The following students obtained honourable mention:—Messrs. Harold Leeney, Alfred Joseph Sewell, Frederick Robert Stevens, and John Richard Carless (Royal Veterinary College), with *very great credit;* also Messrs. John Herbert Callow, George Reed Dudgeon, Edward Miles Perry, and James Broad (Royal Veterinary College), Thomas John Watt Dollar, Peter James Combe (Edinburgh Veterinary College), and David Crabb (New Veterinary College, Edinburgh), with *great credit.*

The election of a board of examiners for the Fellowship Degree was considered by the Council.

It was thought desirable that the examiners should be members of the profession, and also fellows, and be elected for one year only. On the ballot being taken, Professor Williams, Messrs. Fleming, Harpley, and Robertson, were declared duly elected.

Two special examinations for the Fellowship Degree were held on July 7th, 1877, and January 12th, 1878, when the following gentlemen passed their examinations, and were admitted Fellows of the Royal College of Veterinary Surgeons :—

Mr. Richard Poyser, 6th Dragoon Guards, Colchester.
„ William Hunting, Down Street, London.
„ Tedbar Hopkin, Strangeways, Manchester.
„ William Augustus Taylor, Turner Street, Manchester.
„ Thomas Briggs, Prestwich, Manchester.
„ Henry Olver, Tamworth.
„ Arthur Henry Santy, Norwich.
„ Robert Ward, Woking, Surrey.
„ William Duguid, Brown Institution, London.
„ John Woodroffe Hill, Wolverhampton.
„ Joseph Mackinder, Peterborough.
„ Charles Edward Challinor, Pendlebury, Manchester.

The Council have now under consideration the following amendments in Bye-law 50, having reference to the preliminary examination required of candidates for the Fellowship Degree.

The following is the proposed amended Bye-law :—

'Each candidate other than a professor, or ex-professor, at a school affiliated with the Royal College of Veterinary Surgeons, or gentlemen who have passed the Civil Service or Army Examination held by the Civil Service Commissioners, will be required to produce a certificate of graduation in arts at a university to be recognised for this purpose by the Council ; or after an examination by the College of Preceptors, on subjects to be fixed from time to time by the Council.'

Prizes.

The Fitzwygram Prizes.—The number of competitors for these prizes in 1877 was not so large as on the preceding year. The *vivâ-voce* and practical examination took place in London. The only candidates who obtained the required number of marks were from the Royal Veterinary College. Of these only two were successful, viz. :—

Mr. Richard Glover, First Prize £50
Mr. Laurence Tipper, Second Prize £30

The donor of these prizes has intimated that the competition will be held this year in June.

The Royal Agricultural Society's prizes were again competed for by the students from the Royal Veterinary College, and although there were twelve candidates eligible to compete, only four presented themselves for examination.

The examiners in their report expressed regret in not being able to state that the candidates possessed so high a degree of proficiency as last year; but add that the practical portion of the examination was more satisfactory.

Mr. Matthew Hedley, jun. . . £20 and gold medal.
Mr. Thomas Chambers . . . £10 and silver medal.
Mr. Robt. Ernest Hoile . . . £5 and bronze medal.

The Council have recently had under consideration the Contagious Diseases (Animals) Bill, now before Parliament, to which their attention was directed by a letter received from the Lords of the Privy Council, desiring to be favoured with any observations the Royal College of Veterinary Surgeons might wish to offer.

The Council decided to appoint a special committee, which drew up and forwarded the following report, which was duly acknowledged, and a statement made that it would be submitted to the Lords of the Council.

The Committee reported that, 'after carefully considering the provisions of of the Bill, they are of opinion that these provisions are of a satisfactory character ; and if efficiently carried out will largely tend to prevent and suppress, if they do not entirely succeed in doing so, Cattle Plague, Pleuro-pneumonia, and Foot-and-mouth Disease.

'With regard to the other maladies alluded to in the Bill—viz., Sheep-pox, Sheep-scab, and Glanders and Farcy—the Committee cannot make any observation, as they are not the subject of special legislation in this Bill, like the aforementioned diseases.

'Nevertheless, the Committee would beg to point out that these disorders are very contagious and destructive, and should receive equal attention in proposed legislation.

'The Committee also deem it their duty to point out that there are other contagious and dangerous diseases not mentioned in the Bill, but which should be considered in dealing with this important subject. Among these maladies they may specify Rabies, Swine Plague, and Splenic Apoplexy or

Anthrax Fever. They are likewise of opinion that the power of entry, in cases where Glanders or Farcy exists, or is suspected to exist, should be given to the veterinary inspector.

'With regard to the "Declaration of freedom from Pleuro-pneumonia," the Committee consider that the period of fifty-six clear days mentioned in the Bill does not afford absolute security, as the latest or incubative stage occasionally extends beyond that time.

'In Clause 20 (p. 7), par. 1 and 2, the Committee think that in order to ensure a clearer definition, instead of the words "cessation of the disease," it would be better to substitute "after date of complete recovery of the animal last affected."

'With regard to foreign animals, the Committee are strongly of opinion that the slaughter at the port of embarkation is greatly to be preferred to that at the port of debarkation, as it would reduce in a much greater degree the risk of importing contagious diseases.

'Quarantine, to be safe, will require the exercise of the greatest vigilance and skill on the part of the veterinary inspector and superintendents.

'The Committee observe with much satisfaction that local authorities must appoint a member of the Royal College of Veterinary Surgeons as veterinary inspector. The urgent necessity for this step has long been felt, and its importance is now immensely enhanced from the fact that the Bill imposes such serious restrictions on owners of animals, which the employment of fully qualified and competent men can alone render acceptable to them.

'The Committee are confident that the success of legislative measures for the prevention and suppression of contagious diseases in animals, must greatly depend upon the skill and judgment of the inspectors; for, owing to the employment hitherto of very many men who were unacquainted with the nature and symptoms of these disorders, much hardship has been inflicted on stock owners, and the objects of previous bills have been in a great measure defeated.'

The Council were informed that in the Medical Act Amendment Bill (1858), now laid before Her Majesty's Government, there was a paragraph in Clause 22 which was considered very objectionable to the veterinary profession.

The subject having been laid before the Parliamentary Committee, a letter containing the following resolution was submitted to the Lord President of the Privy Council:—

'*Resolved*—That the last paragraph of Clause 22, "that nothing in this section shall impose a fine on a person engaged solely in the cure or treatment of the diseases or injuries of animals and not of human beings," is objectionable from the fact that it protects unqualified persons who are engaged in the treatment and cure of the diseases and injuries of animals.'

The Committee suggested that either the clause should be struck out, or words 'any duly qualified person' inserted.

The Council have subsequently been informed 'that His Grace had no objection to the omission of the paragraph referred to, and that it was only introduced with a view to prevent any vexatious proceedings. He had therefore instructed the draughtsman to remove the paragraph.'

The following is a statement of the attendance of members at the Council meetings held during the year 1877-8:—

Vice-Presidents.

Samuel H. Withers . .	3	James McCall . . .	0
Joseph Woodger, jun. . .	4	Thomas Walley . . .	0
Henry Joseph Cartwright .	5	William Smith . . .	4

Council.

Peter Taylor	8	Jas. B. Simonds	2
John Cuthbert	5	Jas. C. Broad	3
Richard S. Reynolds	3	Jas. Moon	5
Francis Blakeway	6	T. W. Talbot	0
Benjamin Cartledge	2	Geo. Balls	3
Matthew J. Harpley	7	W. H. Coates	8
Geo. Fleming	6	T. W. Gowing	5
Wm. Pritchard	3	Jas. Collins	5
Wm. Williams	2	J. Roalfe Cox	4
Hartley T. Batt	8	Gen. Sir F. Fitzwygram	8
Thos. Greaves	8	Robert L. Hunt	3
Geo. T. Brown	6	G. Williams	1
Ed. C. Dray	8		

The College Fund.

The only subscription which the Council have received during the past year has been the sum of twenty-five guineas, presented by Messrs. Peter Taylor and Son, of Manchester. This sum and the balance at the bankers, enabled the Council to make a further investment in the purchase of stock.

	£	s.	d.
Amount of stock standing in the names of the trustees	1390	17	1
Additional purchase	122	16	3
	1513	13	4
Dividends	43	0	6
Total	1556	13	10

The Council regret exceedingly that the total amount collected towards procuring a suitable building for the Royal College is not nearly sufficient for the purpose; and it is in contemplation to petition Her Majesty's Government for assistance.

The most valuable acquisition to the Royal College that has occurred for many years, has been the presentation to the library and museum by Wm. Field, Esq.

The gift consists of many rare and standard books, anatomical plates, paintings, engravings, and water-colour drawings, as well as several interesting anatomical and morbid specimens, plaster casts, models, horseshoes, bits, and veterinary instruments. Also a variety of chemical and galvanic apparatus.

Some extra expenditure has been necessarily incurred in providing accommodation for so large an accession to the College property, and a suitable case has been fitted up in the board-room containing the "Field Library."

Presentations have also been made to the library and museum by Professor Brown, Mr. Geo. Fleming (2nd Life Guards), Mr. Jas. J. Meyrick (Royal Artillery), Mr. Graham Mitchell (Australia), and Mr. Jas. Moon (Kingston-on-Thames).

A printed catalogue of both libraries has been prepared, the total number of volumes being now 800.

The registrar has to report the death of thirty-three members of the profession since the last annual meeting.

Two hundred and fifty copies of the new register, with the charters and bye-laws, have been issued and sold during the past year. A register will shortly be published containing the names of the new members of the profession, and the alterations which have been made since the last issue.

Copies may be had on application to the Secretary, price 1*s.* 6*d.*, or post free 1*s.* 8*d.*

The financial report is annexed. The balance-in-hand, after defraying the expenses of the year, amounts to £528 5*s.* 11*d.*

The Council are glad to be able to report that the measures which they took have been successful in reducing the expenditure within the income, and the result shows a fair balance on the year in favour of the College.

The Council are also glad to be able to report that the new system of examination has worked very satisfactorily. The allotment of one subject only to each table, has made much more apparent the success or failure of the candidate in each subject: for instance, under the old system of examination, horse and cattle practice were linked together; under the present system, the student is examined on each at a separate table.

S. H. WITHERS, *Treasurer, in account with the Council of the Royal College of Veterinary Surgeons, from April 1st, 1877, to March 31st, 1878.*

Dr.	£	*s.*	*d.*
Balance at Bankers', April, 1877	478	3	10
Examination Fees to March 31st, 1877	1042	13	0
Fellowship ditto	262	10	0
Dividends	18	19	10
Copies of Register	13	14	6
Registrar's Fees	0	8	0
Library Catalogues	0	1	0
Property Tax	1	5	0
Gas consumed by C.V.M. Soc.	1	17	6
	£1819	12	8

Cr.	£	*s.*	*d.*
Examiners' Fees and Expenses	703	7	3
Brokerage and Banker's Commission	2	0	3
Rent	100	0	0
Rates and Taxes	38	2	10
Salary to Secretary	150	0	0
Insurances	1	18	9
Advertisements	11	15	4
Printing and Purchase of Type	107	16	11
Diplomas	8	0	0
Stationery and Postage Stamps	27	18	5
Clerk	10	0	0
Reporters	15	15	0
Coals, Gas, and Wood	25	10	9
Bookbinding and Books for Library	7	2	6
Specimen Drugs and Chemicals	1	8	8
Bookcase and Repairs to Library and Museum	27	19	7
Wages	20	0	0
Petty House Expenses and Messenger	32	10	6
Balance at Bankers'	528	5	11
	£1819	12	8

Amount of stock standing in the names of the trustees, £640 19*s.* 11*d.* three per cent. Consols.

We, the undersigned, have examined the above accounts, and have found them correct.

THOMAS MOORE,
ALFRED WITHERS, } *Auditors.*

April 27th, 1878."

Mr. DRAY moved, and Mr. HARPLEY seconded, that the report be received. Carried.

Mr. DRAY moved the adoption of the report, and Mr. GOWING seconded the motion.

Mr. DRAY, as one of the Committee who drew up the report, regretted that it was not more favourable, particularly as regards the College Fund. The profession was deserving of better premises than they now possessed, and must, by some means, obtain larger accommodation if they would take their proper status—particularly since the munificent gift of Mr. Field to the museum and library, as well as of other contributors. For want of space the museum and library were not thoroughly appreciated. He thought there was very little chance of their obtaining a grant from Parliament: therefore it was imperative that the profession itself should make a fresh effort by way of starting another subscription. He himself was quite willing, although not a rich man, to double his contribution on condition that the other subscribers would do the same.

A letter from Mr. Mayer was read, regretting that the profession was not more extensively acknowledged, and that they were without a local habitation which would be worthy of the profession.

Mr. GOWING, while concurring in the remarks made by Mr. Dray, wished to call attention to the altered condition of voting. When first the alteration took place he thought it was highly satisfactory; but since then he had reason to change his mind. He had received a circular from a provincial veterinary society, asking him to vote for four members whose names were therein specified, but he could not conscientiously adopt such a course as the circular suggested. If such a mode of proceeding were allowed to go on, by-and-by there would be an undue preponderance of country members on the Council. He only wished to call attention to the matter in the hope that by doing so a free discussion would be elicited. From his experience of the profession, he had found that the members in cases of election were always able to judge for themselves.

Mr. OWLES considered such a system as that referred to by Mr. Gowing was one of coercion. It was also illegal, and would not be tolerated in the election of members of Parliament. He was quite certain that those gentlemen who had issued the circulars would, on consideration, find that they had made a mistake, however high the motives by which they might have been actuated. He did not think it was creditable to the members of the profession that they should be told for whom they ought to vote. The course proposed, he thought, was little short of dictation.

Professor AXE considered the system which had been adopted as one which would not receive recognition in any scientific body. He would not use so strong a word as coercion, but he would regard the method adopted as a species of combination which he thought was most objectionable, and which he hoped their own profession would not for a single moment countenance. He asked those who intended to vote to exercise their judgment as to the capacity and attention which certain members of the Council had exercised in the performance of their duties.

Mr. HUNTING defended the course adopted by the provincial societies, and said it seemed to him the only two objections urged against it were—that it was extremely unfair to the metropolitan members, who had the run of the Council-room, and could do almost what they chose; and that they, being a scientific body, should not be business men and adopt the same tactics as those adopted by members of Parliament in securing their election. Trades-unionism was no doubt in bad odour; but it was resorted to in every profession. As to the Fellowship diploma, he would suggest that it was made much more difficult than it ought to be; and in reference to the educational test, out of sheer charity he would say nothing about it. Looking to the small transactions of the Royal College, he could not agree

with the recommendation of the report for the acquisition of larger premises. When the profession was worthy of a better building no doubt it would obtain it.

Mr. W. SMITH could not agree with the view that the scheme adopted by the country associations amounted to coercion. He thought it would be acknowledged that for some years past the London practitioners had really had the best of the matter, and that the country practitioners, having heads on their shoulders and brains in their heads, should participate in some degree in the management of their own affairs. He referred to the system of "packing" the annual meetings, which, he said, was in former times resorted to for the purpose of securing particular candidates ; but he was happy to think that such a state of affairs had ceased to exist. Speaking for his friends in the country, he was sure that they would be as unwilling to do an act of injustice as any gentlemen in the city of London. To say that the mode adopted by the country associations was coercive, unconstitutional, or illegal, was to say that which was untrue and unworthy of those who said it.

Mr. HOWARD was of opinion that until more commodious premises were obtained, the same lack of interest would continue to be manifested in the affairs of the Royal College of Veterinary Surgeons. While fully appreciating the past labours of the Council, he could not but draw attention to the fact that by the Supplemental Charter, the profession was deprived of their political rights by one swoop ; and knowing this, no member of the profession would subscribe to the funds for the erection of more extensive premises.

A member repudiated the idea of coercion or trades-unionism, which had been suggested by some of the previous speakers. It appeared to him that the circulars issued were more in the way of suggesting suitable members of the profession as their representatives than anything else.

Mr. HUNTING, Sen., as a provincial practitioner, and as having some share in the improvement of the profession by the establishment of veterinary medical associations in the provinces, gave it as his opinion that the provincial members were almost the hardest working members of the profession, and that what they had done in the way of issuing circulars had been with the object of furthering the interests of the profession at large. If the provincial societies had done nothing else, they had given increased energy to the members of the profession in London.

Mr. HELMORE agreed with the views of the last two speakers. He did not know of any abler or worthier members of the profession than those sent from the provinces. It was sometimes desirable that fresh blood should be infused into governing bodies. He had, on former occasions, had at the annual meeting cards put into his hand soliciting his vote for particular candidates ; so that metropolitan members of the Council should be the last to complain of the system of issuing circulars by the country associations. He did not look upon the issuing of these circulars as a system of coercion, but merely as a recommendation of certain candidates for the consideration of the members. Having expressed his satisfaction with several recommendations in the report, he suggested that the refuse of animals which were slaughtered should be properly disposed of, because in it were the germs of disease, which were sometimes spread all over the country.

Mr. FLEMING, alluding to the system of voting papers that had been objected to by some of the previous speakers, thought that it did not deserve any hard names. He paid a high compliment to the administrative ability and tact of the provincial societies, the members of which, he said, were in an excellent position to judge as to who were the fittest members to represent them on the Council. The course that had been adopted was called unparliamentary ; but it was not so, because in every parliamentary election he

had received cards similar to those that had been issued by the country associations. He thought it would be an advantage to the profession if even more societies were formed, especially in the west and the south.

Mr. PETER TAYLOR, in a speech of some length, as a country member indignantly repudiated the idea of the country associations being actuated by any but honourable motives, and charged the London professors with packing the room with students at the annual meeting, in order to secure particular candidates.

Professor AXE asked Mr. Taylor to withdraw the charge he had made as to packing the meetings. Such a course had never been resorted to, either by himself or any other of the London professors.

Professor PRITCHARD seconded Professor Axe's remarks, and demanded from Mr. Taylor an explanation.

Mr. TAYLOR adhered to his statement, and expressed himself as willing to prove it if necessary.

Mr. GREAVES expressed himself as taking a deep interest in provincial associations, which, he thought, tended to further the interests of the profession and to promote unanimity. He was quite sure that those associations would send none but tried and experienced men as their representatives. He contended that the provincial members were acting rightly and properly in issuing the voting papers.

Mr. BARFORD said he had a circular sent to him, but he did not look upon it as a species of coercion. He believed the veterinary associations were extremely representative in their character; and, as representing the southern counties, he expressed his regret that, the districts being so widely situated and thinly populated, there were so few veterinary associations in that quarter, and that the former number could not be kept up. He gladly welcomed the new system of voting that had been adopted.

Professor PRITCHARD, again adverting to the charge brought by Mr. Taylor against the London professors of packing the annual meetings, gave it a most positive denial.

Mr. CARTLEDGE endorsed the statement made by Prof. Pritchard, and gave it as his opinion that the country associations had always been fairly represented—in fact, they had been more powerful in the selection of their representatives—than the metropolitan members.

Mr. HUNT said he could safely assert that he had not been influenced by the voting papers that had been sent him. He called attention to the fact that a fair proportion of London representatives was necessary, because, being on the spot, and having the ear of the members of the Government and those in authority in the State, they could facilitate the passing of measures which tended to promote the interests of the profession.

Mr. HARPLEY called attention to the abuse that had been made of the ballot in the case of the Royal College of Surgeons, who had now discontinued the method; and the profession, knowing that such a mode of voting could be abused, would, he was quite certain, stop short before that abuse was made use of.

Mr. ROWE pointed out what he considered an omission in the report. The Committee had suggested other diseases which were not mentioned in the report; but to these he thought should be added parasitic diseases—the increase in which any one in the habit of making *post-mortem* examinations could not fail to be struck by.

Mr. FLEMING, as chairman of the committee who drew up the report, said they did not think it necessary to specify all the maladies which should be taken notice of by the Government, who appeared to be disinclined to notice more than the three bovine maladies mentioned in the Bill.

The PRESIDENT said that, without joining in the discussion which had

taken place rather warmly on the action of the provincial societies, there was one point which had been rather overlooked—namely, that the northern societies had not used their great power to return exclusively provincial members ; and, if he recollected rightly, the list that Mr. Dray read contained, out of the seven names, three gentlemen who were well known in London. He begged to move the adoption of the report, together with the Treasurer's balance-sheet.

The motion was carried unanimously.

The minutes of the last meeting were read and confirmed.

On the motion of the President, seconded by Mr. Harpley, power was given to the Council to appoint a committee to confer with the Highland and Agricultural Society in regard to the discontinuance of their examination.

Mr. FLEMING moved that the Government be solicited to assist the Royal College of Veterinary Surgeons in giving it a suitable home, and one which would be worthy of the profession. He thought the time was come when the country should assist them, considering the advantage the profession had conferred upon every part of the Empire during the last thirty-five years in protecting its immense animal wealth.

Mr. CARTLEDGE seconded the motion, which was supported by Mr. W. SMITH, and ultimately carried.

The SECRETARY then read the Scrutineers' report of votes for the election of members. The result was as follows :—

Gen. Sir Fred. Fitzwygram	558	Mr. Proctor . .	303
Mr. Collins . . .	530	„ Hunt . .	297
„ Cox	374	„ Gowing . .	274
„ Coates . . .	345	„ Smith . .	158
„ Morgan . . .	319	„ Naylor . .	127
„ Freeman . . .	310	„ Williams . .	118

The PRESIDENT then declared Messrs. Collins, Cox, Coates, Morgan, Freeman, Proctor, and himself duly elected.

The President decided by lot, in accordance with the provisions of the Charter, that Mr. J. Roalfe Cox fill the vacancy caused by the resignation of Mr. Talbot.

The meeting then adjourned.

ROYAL COLLEGE OF VETERINARY SURGEONS.

NEW MEMBERS OF THE PROFESSION.

AT the several meetings of the Scottish section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow on April 24th, 26th, and 27th, the following students passed their "Final Examination," and received the diploma of the Royal College of Veterinary Surgeons :—

Edinburgh Veterinary College.

Mr. John Blench, Thornley, Durham.
„ Thomas Peter Young, Edinburgh.
„ Walter Johnston Holland, Manchester.
„ George Henry Watkins, Tredegar, Monmouthshire.
„ Peter James Combe, Haddington.
„ John George Muir, Mauchline, Ayrshire.
„ William Slowan Pringle, Newcastle on-Tyne.
„ Thomas Mallalieu Coates, St. Helen's, Lancashire.
„ Thomas John Watt Dollar, London.

Mr. John Thomas Gregory, Southsea. Hants.
„ Thomas Alexander Killick, Eccleshall, Staffordshire.

Messrs. Thomas John Watt Dollar and Peter James Combe passed with GREAT CREDIT.

Edinburgh New Veterinary College.

Mr. Robert Knight, Dunfermline.
„ John Thomas Phillips, Carmarthen, South Wales.
„ Adam Sievwright, Keith, Banffshire.
„ David Crabb, Paulride, Carnoustie, Forfarshire.
„ William Henry Bridge, Oldham, Lancashire.
„ Henry Hannan, Limerick.
„ Joseph Darbyshire, Wigan.
„ Frank Bottomley, Oldham.
„ Edward Hitchin, Robin Hood's Well, Doncaster.
„ William George Chisnall, Liverpool.

Mr. David Crabb passed with GREAT CREDIT.

Glasgow Veterinary College.

Mr. William Findlay Houston, Wester Walkinshaw, Paisley.
„ Andrew Robertson, Glasgow.
„ Amos Wilkinson, Didsbury, Manchester.
„ Clayton Love Hingston, Bay City, Michigan, U.S.
„ Hugh Adolphus Warburton Ferguson, Dublin.

The following students passed their "First Examination" :—

Edinburgh Veterinary College.

Mr. John Douglas,
„ Alexander Henderson Gentle,
Mr. Robert Humphries Jones,
„ Robert Bouchier Prentice.

Edinburgh New Veterinary College.

Mr. Joseph Temple,
„ James Wood Ingram,
„ William Swithenbank,
Mr. Charles James Martin,
„ Edward Yorston,
„ James Bell Paterson.

Glasgow Veterinary College.

Mr. William Pettigrew,
Mr. Hugh Gardner Marshall,
Mr. William James Gray Johnston.

The following students passed their "Second Examination" :—

Edinburgh Veterinary College.

Mr. George Marshall Mitchell,
Mr. Charles Rutherford.

Edinburgh New Veterinary College.

Mr. Alfred James Jones,
„ John Carr,
„ Andrew Hume,
„ Edmund Wood Goldsmith,
„ Edward Hugh Leach,
„ Frederick Garside,
Mr. Thomas Herbert Lewis,
„ John Henry Wilson,
„ Thomas Barrot Stone,
„ Philias Martial,
„ Kay Lees,
„ John Legge.

Glasgow Veterinary College.

Mr. William Miller,
„ William McQuiston,
„ Jeremiah McCarthy,
„ John Baillie Hamilton,
Mr. John McDougall,
„ James Storrar,
„ Bernard Patrick Mahoney,
„ Charles Douglas Currie.

ROYAL VETERINARY COLLEGE, EDINBURGH.

THE session of the Royal Veterinary College, Clyde Street, was brought to a close on April 26th, by the presentation of the prizes to the successful students. The ceremony took place in the City Chambers—the Town Council being Trustees of the College—and there was a large attendance of ladies and gentlemen, friends of the students and of the Institution. Bailie Rowatt, in the absence of the Lord Provost and of Bailie Cranston, convener of the committee of management, presided; and there were present Bailie Tawse, Councillors Landale, Turnbull, Macdougald, Milne, Macknight, Principal Walley, Professors Baird and M'Fadyean, Mr. M'Callum, V.S.; Mr. Rutherford, V.S.; Mr. Macdougald, Granton Maines, etc.

Principal WALLEY read his annual report to the trustees of the College. "I have," he said, "to report that, notwithstanding one or two unavoidable and unlooked-for drawbacks at the close of the last sessional year, the present condition of the College is in every sense satisfactory; the number of students joining since the date of my last report being far in excess of the number during any similar period for several years, and, what is more encouraging, the report of Dr. Donaldson (the examiner appointed by the Trust) states that the general educational attainments of the candidates are considerably above those of previous years. As to the results of the spring examinations, I cannot at present say much, as they have not yet terminated, but so far as they have gone we have every reason to be satisfied. In the competition for the Highland and Agricultural Society's gold medal for the best general Examination, Mr. John Malcolm took the first place; the same gentleman also made a good second for the best practical examination. In the intra-collegiate competitions for prizes, much spirit has been shown, especially in the competition for Councillor Waldie's prize; the tests also have been much more severe than usual. The results of the various competitions are as follows:—For Councillor Waldie's prize (open to all the students) four were placed, after three trials, in the short leet—viz., Messrs. Watkins, Dollar, Malcolm, and Young—the final test placing Mr. Young first, and Mr. Watkins second. For the Highland Society's silver class medals, Mr. Malcolm takes the highest place, having obtained the medals for botany, chemistry, horse pathology, cattle pathology, and physiology—Mr. John Blench being second, he having obtained the medal for anatomy, and the extra medal for cattle pathology, and being second in the competition for horse and cattle pathology. Mr. H. E. Poole is the recipient of the medal for materia medica, and Mr. Watkins of the medal for clinique and practical examination. Mr. J. T. Gregory deserves honourable mention in the competition for the horse and cattle pathology medals. The Professor's gold medal for cattle pathology was obtained by Mr. Malcolm; Mr. Blench being second. The result of these various examinations gives Mr. Malcolm the gold medal, and Mr. Blench the silver medal, of the Dick Trust. For the best essay of the session Mr. Dollar takes the silver medal of the Veterinary Medical Association and Mr. Malcolm the certificate of merit—the subject chosen by the former essayist being "Strangles," by the latter Zymotic Pleuro-pneumonia in cattle. Dr. Donaldson reports Mr. Ryan as having obtained the extraordinary matriculation certificate, and Mr. Woods the ordinary for the present session, Mr. Calvert being third. I have to express my indebtedness to my colleagues for their sympathy and assistance, to Dr. Donaldson for carrying out the examination for the matriculation certificates, and to Mr. Robertson, Kelso, for acting as arbiter in the essays. The following gentlemen have complied with the rules of the College and of the Veterinary Medical Association, and having passed the Highland and Agricultural Society's examinations, are entitled to the class certificates and to

the diplomas of membership and fellowship of the Association :—Messrs. Muir, Dollar, Watkins, Gregory, Poole, Young, Blench, Walsh, O'Riardon, Malcolm, Kirk, and Pringle. The certificates of several gentlemen who have not yet passed any examination are withheld until the results of the London examinations are known."

The medals were then presented to the students by Bailie Rowatt, Bailie Tawse, Councillor Landale, and the Principal.

The CHAIRMAN said he was expressing the sentiments of every member of the trust when he announced the extreme gratification which the Principal's report of the success of the last session had given. He was glad to hear that the number of students at the College was greater than in any year since Principal Walley came to the College, and the examiners' report showed that the students' examinations had been above the average. On the part of the trustees of the College, he begged to thank Principal Walley and the Professors for the great attention paid to the students.

Principal WALLEY congratulated the students upon their success, and wished them very heartily still further success in the examinations for the London diploma. He thanked the students for their gentlemanly conduct during the past session, and for their attention to their studies. He sincerely hoped that those who had completed their course would go forward to the world remembering their *alma mater*, and that when opportunity occurred they would assist younger men at College by sending them interesting specimens. He trusted they would follow their noble calling with the earnest determination of affording as much relief to the lower animals from pain as was within man's power.

On the motion of Bailie ROWATT, a vote of thanks was accorded to the Highland Society for the interest they had always taken in the College, and for the medals which they had presented to the successful students.

On the motion of Principal WALLEY, a vote of thanks was given to Bailie Rowatt for presiding.

EDINBURGH NEW VETERINARY COLLEGE.

THE winter session of the New Veterinary College, Edinburgh, was brought to a close on April 27th, when prizes were presented to the successful students, and presentations made to Professor Williams by the students attending the College, and by General Sir Frederick Fitzwygram, Bart., on behalf of a large number of members of the veterinary profession. The meeting took place in the hall of the College, Gayfield House ; and besides the students there was a large attendance of ladies and gentlemen. The chair was occupied by General Sir Frederick Fitzwygram, President of the Royal College of Veterinary Surgeons ; and among other gentlemen present were—Professor Williams, Dr. Young, Mr. G. M. Barclay, R.S.A. ; Mr. Munn, High School, Edinburgh ; Messrs. Finlay, Aitken, Dalkeith ; Borthwick, Kirkliston ; Connochie, Selkirk ; Macdougal, Storie, East Linton ; Dollar, Jun., London.

Professor WILLIAMS intimated letters of apology for absence from a large number of gentlemen, and afterwards made a few observations appropriate to the close of the session, which he said had been the most successful ever experienced at the College, the number of students having been eighty-six, or about twenty more than attended the previous session. The students had also been most attentive in their studies, and had attained generally a high degree of proficiency. The Professor then proceeded to deliver the prizes as follows :—

The gold medal presented by the Highland and Agricultural Society for open competition had been gained this year by one of the students attending

the New College—Frank Bottomley, Oldham ; and in the same class of prizes first-class certificates had been awarded to John T. Phillips and David Crabb, and second-class certificates to E. H. Leach and J. H. Wilson. The following prizes, given by the Highland Society, and confined to students attending the New College, had been awarded to the undermentioned students :—

Equine Pathology.—Silver medal, W. H. Bridge ; first-class certificates, J. S. Walker and Henry Low ; second-class certificate, John T. Phillips.

Bovine Pathology.—Silver medal, John T. Phillips and Edward Kitchin, equal ; first-class certificate, W. H. Bridge ; second-class certificate, A. Sievewright.

Anatomy.—Silver medal, T. H. Lewis ; and certificates to John Carr, F. Garside, and Edward Leach.

Chemistry.—Silver medal, William Swithenbank ; first-class certificate to —— Fraser.

Silver medal presented by the Edinburgh Veterinary Medical Society, gained by Edward Kitchin, Doncaster. A certificate was granted to Joseph Darbyshire, Wigan.

Botany, Physiology, and Materia Medica.—Silver medal awarded to T. H. Lewis, Crewe.

In addition to the above, Professor WILLIAMS also intimated that several prizes had been awarded for examinations on other subjects, such as educational examinations, to —— Nash, who had gained the first, and Canty the second prize. For the prize of £20, which he himself had offered to students who were successful in three successive years, the successful competitors in this, the second year, were again T. H. Lewis and E. H. Leach ; and if they were successful next year, the Professor intimated that he would have the pleasure of handing each a cheque for £10. The silver medal of the Edinburgh Veterinary Medical Society for the best essay had been awarded to Edward Kitchin, the subject of whose essay was "The Construction of Stables," the award being made by Mr. R. Paterson, V.S., Dumfries, who had kindly acted as adjudicator.

The prizes having been delivered, General Fitzwygram rose to present the Professor with a full-sized head portrait of himself ; and in making the presentation, he said that, both as a personal friend and as President of the Royal College of Veterinary Surgeons, he had great pleasure in doing so. As a work of art it was valuable, but he knew that to Professor Williams it was more valuable from the fact that it was a presentation to him as the Principal of the New Veterinary College by the veterinary profession. It was always pleasing for a gentleman to have a testimonial presented to him, but when it was presented by a large body of subscribers, it showed more fully the worth of the man and also his personal attainments. As regarded the latter, he would say that the Principal was really remarkable, not so much that he had shone in one branch of the veterinary science, but because he had shone in all three branches of the science—mostly, however, as a practical man in the treatment of disease—and was known in another sphere for his wonderful skill as a professor in teaching. His reputation, however, was more widely known throughout the length and breadth of the land, and also of Europe, India, and the United States, as one of the best writers of veterinary works that ever lived. He wished them specially to note this last feature, because veterinary literature had hitherto been one of the worst features connected with veterinary science. In referring to the Principal's career, the gallant General stated that a few years ago he was in possession of a large and lucrative practice as a veterinary surgeon at Bradford. About that time the Principalship of the Old Clyde Street College became vacant—an institution

of which he never spoke without respect, founded, as it was, by the great skill and unfailing energy of his old friend Professor Dick, who worked for it during so much of his life, and when he died, gave what he had gained to the veterinary profession. His friend, Professor Williams, accepted the vacant office, with the sole aim of devoting his great professional talents to the advancement of veterinary science, and under him the College had increased in numbers, reputation, and eminence. But, after a time, some difference, into the nature of which it was not worthy of him to enter, arose between Professor Williams and the governing body of the school, and he resigned his Principalship. Thus, at middle life the Professor was somewhat stranded. But Professor Williams was a man worth calling a man. He was not going to give in, but determined to fight the battle of life, and the battle of veterinary science, trusting to his own resources—a high character, great skill in teaching, and the confidence of his students. He thought it was a remarkable feature in the career of the Professor that he succeeded in carrying away from the old school in Clyde Street to a new and untried school almost the whole of the students of the Clyde Street school. Now, he might fairly say that success had crowned his efforts, as the New Veterinary College, if not in the foremost, was in one of the foremost positions of veterinary schools. He was glad to have heard from the Principal that day that the school was now more prosperous in numbers than in any other session, and that the students had behaved themselves in their classes like gentlemen and men of honour.

Professor WILLIAMS, in reply, said he felt the honour conferred upon him so deeply that he was unable to express his gratitude in words. He placed a very high value on this handsome presentation, given to him through the College of Veterinary Surgeons as a mark of esteem and respect from a large number of subscribers. It would console him for many anxieties and troubles he had had to bear, and be an ever-present evidence to him that his conduct in the past had received their approval. It would also prove a stimulus to him for the future, and make him careful to do nothing to forfeit the good opinion already formed of him by the members of the veterinary profession. The fact that the presentation had been made to him by Sir F. Fitzwygram, the esteemed President of the Royal College of Veterinary Surgeons, enhanced the value of the gift. He again thanked the subscribers for the mark of their esteem and respect now conferred upon him.

The portrait was a very striking likeness, and drew forth warm applause when it was unveiled in presence of the audience. The following was the inscription :—"Presented to W. Williams, Esq., F.R.C.V.S., and F.R.S.E., Principal of the New Veterinary College, Edinburgh, by members of the veterinary profession, as a mark of their high regard for his professional and personal character. 1878." The artist was Mr. G. M. Barclay, R.S.A.

Mr. KITCHIN afterwards presented Principal Williams, in the name of his fellow-students, with a large photograph, in gilt frame, of the students attending the New College during the present session, and the Principal suitably acknowledged the gift.

A vote of thanks was afterwards accorded to the artist, Mr. Barclay, who replied ; and a similar compliment was paid to the chairman, who gave a short address in closing the session, referring to the increasing importance of the veterinary profession and the duties of students and professional men.

This closed the proceedings.

GLASGOW VETERINARY COLLEGE.

THE winter session at this institution terminated on April 24th; and on the 25th and 26th the oral examinations of the Royal College of Veterinary Surgeons

were conducted within the museum of the College. The candidates for the diploma were also subjected to a rigid practical examination, conducted on horses, cattle, and sheep brought to the College for that purpose. Twenty-four students presented themselves for examination; and the following gentlemen were awarded the medals granted by the Highland and Agricultural Society of Scotland, and the certificates of merit granted by the College :—Horse pathology (written examination)—Medallist, Mr. Barry, Kilkenny, Ireland ; first-class certificates, Messrs. Wilkinson, Manchester, and Robertson, Glasgow ; second-class certificates, Messrs. Houston, Paisley ; Clay, Cromford, and Webster, Wexford, Ireland. Cattle pathology (written examination)—Medallist, Mr. Houston ; first-class certificates, Messrs. Wilkinson and Barry ; second-class certificates, Messrs. Robertson and Clay. Practical examination of horses as to soundness, operations, etc.—Medallist, Mr. Wilkinson ; first-class certificates, Messrs. Barry and Houston ; second-class certificates, Messrs. Robertson and Clay. Practical examination of cattle and sheep as to age, soundness, operations, etc.—Medallist, Mr. Houston ; first-class certificates, Messrs. Clay and Webster ; second-class certificates, Messrs. Robertson and Ferguson. Best oral examination on all subjects (Principal M'Call's gold medal) —Mr. Hugh Ferguson, Dublin. Histology and physiology—Medallists, Messrs. Currie, Isle of Arran, and Kingston, Bay City, U.S.A. ; first-class certificates, Messrs. Houston, Barry, and Mahony ; second-class certificates, Messrs. Hamilton, Clay, and Wilkinson. Anatomy (special and comparative)—Medallist, Mr. Hamilton, Blantyre ; first-class certificates, Messrs. Mahony and Currie ; second-class certificates, Messrs. Storrar, Chester, and John M'Dougall, Oban. Pathology (junior written examination) —Medallist, Mr. Hamilton ; first-class certificates, Messrs. M'Dougall and Currie ; second-class certificates, Messrs. Mahony, M'Quiston, and Storrar. Best oral examination on anatomy, physiology, and histology (Professor Allen Thomson's gold medal)—Mr. Currie, Arran.

CENTRAL CANADA VETERINARY ASSOCIATION.

On March 20th, a number of veterinary surgeons practising in Eastern Canada, and in the State of New York, met in the hall over Dr. Coleman's infirmary, for the purpose of forming an association for Central Canada. Among those present were noticed the following surgeons :—A. O. F. Coleman, Ottawa ; R. C. Hutchings, Watertown, N.Y.; T. A. Hood, Ogdensburg ; R. W. Kenning, Pembroke ; T. Allan, Brockville ; and T. H. Murcott, Ottawa.

Dr. Coleman presided ; and after a constitution and bye-laws had been adopted, the following officers were elected for the current year :—President, A. O. F. Coleman ; Vice-president, R. C. Hutchings ; Secretary, T. H. Murcott ; Treasurer, R. W. Kenning. The meeting then adjourned until eight o'clock, when Dr. Hutchings read a most interesting paper on the use of the hypodermic syringe in the treatment of the diseases of domesticated animals. He said in the hands of the physician it had performed wonders, and saved many animals that would otherwise have been lost, from the inability of the stomach to retain medicine a sufficient length of time to become absorbed. If such satisfactory results can be obtained in the medical profession, it is not unreasonable to suppose that equally good results can be gained by the veterinary. After referring to the success he had had in the treatment referred to, he pointed out that the advantages derived were, (1) rapidity of action ; (2) intensity of effect ; (3) economy of material ; (4) certainty of action ; and, what is of essential benefit to the veterinary surgeon, facility of introduction. The only disadvantages he knew of were occasional local

suppuration, which occurred at the seat of the injection ; but such a result was of minor importance, compared to its overwhelming advantages. Mr. Allman claims to have overcome the tendency to suppuration by using glycerine as a solvent. He (the speaker) had tried his formula, and in the majority of cases suppuration followed. But it might have been his fault in not preparing the solutions thoroughly, or it might be that glycerine is more of an irritant to the cellular tissue than water. He gave a description of the operation of injections and of the medicines used, with other valuable information.

Dr. SWEETLAND was present and spoke. He said he had no doubt it would prove of the utmost importance to veterinary medicine. He complimented Dr. Hutchings on his creditable paper, which certainly showed considerable research, with a mind capable of applying suggestions borrowed from the medical profession. With regard to the hypodermic syringe, it was an agent of immense importance to the medical man, and would certainly prove of great use to the veterinary. It would, of course, be of greater service in spasmodic colic, where the relief would be immediate ; but for constipation and cases of that character, the relief would be but temporary, as there could be no permanent cure until the cause was removed.

Dr. HUTCHINGS said with reference to the fuse of the hypodermic syringe, he had been careful to exclude air.

Dr. MACDOUGALL, who was also present by invitation of the President, made a few remarks of a complimentary character, after which a general discussion took place on the paper just read.

A vote of thanks, on motion of Dr. Kenning, was passed to Dr. Hutchings for his able and instructive address, after the President had made a brief address endorsing his views.

ONTARIO VETERINARY COLLEGE.

THE success which has attended this new well-established Institution since its inauguration must be gratifying to the Principal (Professor Smith), to those more directly associated with him, and to the Agriculture and Arts Association, under whose auspices it is conducted. The city of Toronto, also, may feel a pardonable pride in the fact that this, the leading veterinary college of the continent, is located in its midst.

The session just closed has been the most successful of any yet held. While in the previous winter fifty students attended, last winter seventy were present. In addition to the instruction given by the regular staff of Professors, Dr. Bovell has delivered a most valuable course of lectures on Inflammation. Owing to the great facilities offered for the study of veterinary science, and to the diligence and perseverance of the students, a high degree of proficiency has been obtained, as shown by the results of the very thorough examinations just closed. Another pleasing feature in the history of the College has been the kindly feeling always displayed between those teaching and the students, and which was but recently manifested in the presentations to Professor Smith and Mr. Duncan.

The board of examiners are appointed by the Agriculture and Arts Association, and consist of the following gentlemen :—Mr. Ceasar, V.S., Port Hope : Mr. Coleman, V.S., Ottawa ; Mr. Cowan, V.S., Galt ; Mr. Duncan, V.S., Goderich ; Mr. McNaught, V.S., Seaforth ; Mr. Sweetapple, V.S., Brooklyn ; Mr. Wilson, V.S., London ; Dr. Thorburn and Dr. Barrett.

The examinations were held in the large museum of the College, and during the day many visitors were present, consisting chiefly of former graduates of the College, who expressed themselves as highly gratified with the thorough

nature of the examination. Owing to the large number of students to be examined, it was late when the examiners had completed their labours ; but at 10 p.m the Board met the students in the Museum, when Mr. Duncan was called on by Professor Smith to announce the result of the examinations. The following gentlemen have received diplomas : S. G. Anderson, Tottenham ; L. P. Chase, Illinois ; J. R. Deacon, London ; F. W. Derr, Ohio ; G. Falls, Ottawa ; T. Hagyard, Kentucky ; C. Hand, Alliston ; H. Heckenberger, Pennsylvania ; G. P. Hinman, Cobourg ; J. Humphries, Pennsylvania ; W. Jex, Brantford ; A. Moore, Guelph ; J. McKerracher, Highgate ; J. V. Newton, Barrie, Ontario ; S. P. Palmer, Toronto ; B. A. Pierce, Illinois ; H. Setterby, New York ; A. N. Smeall, Toronto ; E. R. Smithers, St. Louis ; A. R. Stephenson, Cobourg ; J. Waddel, Seneca ; L. E. Wheat, Pennsylvania ; G. Theobald, Teeswater.

The following gentlemen have passed a Primary—F. W. Mathews, Toronto ; S. Ottewell, Glasgow. Prize and Honour List : Junior Class—Chemistry, 1st Prize, W. Rose. Honours—S. Foelker, J. Gemmel, F. C. Grenside. Anatomy—Silver medal presented by the Agriculture and Arts Association—S. Foelker ; 2nd, E. Prentice ; 3rd, J. C. Rutherford. Honours—T. Fisher, J. Frink, F. C. Grenside, W. Rose.

Senior Class—Breeding and Management of Stock—1st Prize, given by Hon. S. C. Wood, Commissioner of Agriculture, S. P. Palmer. 2nd and 3rd, presented by the Agriculture and Arts Association, G. P. Hinman, J. V. Newton.

Pathology.—Silver medal presented by the Ontario Veterinary Medical Association, G. P. Hinman ; 2nd, W. Jex ; 3rd, H. Sutterby and S. P. Palmer, equal. Honours—L. P. Chase, F. W. Derr, G. Falls, J. Humphries, J. V. Newton.

Physiology.—1st Prize, L. P. Palmer. Honours—G. Falls, W. Jex.

Chemistry.—1st Prize, H. Sutterby. Honours—G. P. Hinman. J. Humphries, S. P. Palmer, E. Smithers, L. E. Wheat.

Entozoa.—1st Prize, J. V. Newton. Honours—S. G. Anderson, G. P. Hinman, A. N. Smeall, H. Sutterby.

Materia Medica.—1st Prize, G. P. Palmer ; 2nd, W. Jex and G. P. Hinman ; equal honours, J. Humphries, E. Smithers, H. Sutterby.

Anatomy.—Silver medal presented by the Agricultural and Arts Association, H. Sutterby ; 2nd, W. Jex ; 3rd, S. P. Palmer ; honours, G. Falls, G. P. Hinman, J. N. Newton.

Gold medal given by the Ontario Veterinary Medical Association for the best general examination, W. Jex.

The announcements were greeted with loud applause, after which Professor Buckland presented a gold medal to Mr. Jex in appropriate words, to which that gentleman replied. Professor Barrett then presented the silver medal to Mr. Hinman as having passed the best examination, and complimented him upon his success in pathology. Mr. Hinman replied, expressing his thanks for the medal, which, he said, was quite unexpected.

Mr. Sutterby was then called forward, and

Mr. T. STOCKS, President of the Board of Agriculture, presented him with a silver medal as the best anatomist in the senior class. Mr. Stocks spoke highly of the veterinary profession, which requires more skill than the medical profession. He mentioned favourably the strict character of the examinations, and urged the students to press forward in the path of improvement. After paying a grateful compliment to Professor Smith, and handing the medal to Mr. Sutterby, he resumed his seat amid applause. Mr. Sutterby replied appropriately, and Mr. Craig presented a silver medal to Mr. Foelker, as having passed the best junior examination.

Mr. COLEMAN very appropriately alluded to the great pleasure it gave him

to attend the annual examinations, and stated that he had for several years acted as an examiner, and he was pleased to notice the very high standard which the graduates of that day had attained. He trusted that those gentlemen who had then obtained their diplomas, would still continue to be students, to keep up with this progressive age, and that their career would be as bright and shining as the elegant medals which had just been presented.

Mr. Ceasar, Professors Barrett and Buckland then spoke, after which a vote of thanks was passed to the Examining Board for the able and impartial manner in which they had conducted the examinations.

Mr. NEWTON then spoke of the energy and ability shown by the Professors of the College, and called for three cheers for the Faculty, which were given with a will.

Professor SMITH replied, and thanked the students for their kindness. But a few days ago he had met them as students, now they were professional men. He took leave of them with regret, but earnestly hoped that they would prosper in their profession. The company then dispersed, after heartily joining in "God save the Queen."

Notes and News.

THE ROYAL SOCIETY. -Amongst the names already submitted to the Council of the Royal Society for the much coveted distinction of F.R.S., are Dr. Hughlings Jackson and Mr. Schäfer for their scientific and literary labours. Whilst we sincerely trust that these gentlemen will be elected, there are others whose labours are of longer duration, and of a much more extensive character than the latter of these two candidates. There is Mr. Peter Squire, who has now reached to nearly fourscore years without any public mark, for his experimental researches in chemistry and pharmacy, and for his literary works which are spread over the civilised world. Then we have Mr. Fleming, of the Army Veterinary Department. Certainly there is no living writer who has done more than he towards the elucidation of obscure points in pathology, or who has written so large a number of really scientific works. When we mention that in less than ten years he has published five works of from 600 to 1400 pages each, besides various smaller works and contributions to journals and societies, the enormous amount of labour to which we refer will be readily understood. There are others whose names we should rejoice to see decorated with the F.R.S., but refrain spoiling the list by prolixity.—*Medical Press and Circular.*

CONTAGIOUS PLEURO-PNEUMONIA IN HOLLAND.—The gradual decline of Pleuro-pneumonia in Holland since 1871, in which year it attained its highest point, is thus set forth in an official report upon the subject. The number of cases in 1871 was 6,078; in 1872, 4,009; in 1873, 2,479; in 1874, 2,414; in 1875, 2,227; in 1876, 1,723; and in 1877, 933 only. This decrease is due to the police sanitary measures introduced and strictly enforced.

SALICYLIC ACID.—A writer in a Continental contemporary recommends salicylic acid as an infallible means of curing or preventing the diarrhœa of sucking calves. It may be given twice a day in small doses to the calf itself, or in larger doses to the mother. He has found that the calves of cows to which the medicine was given two days in succession immediately after calving, remained absolutely free from diarrhœa, while all others in the sheds were more or less affected.

Correspondence, etc.

QUACKERY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In reading your valuable Journal for last month, I notice a letter written by a "French Student," on Quackery, informing us what amount of ignorance exists even in France relating to it. If your space is not too limited, will you allow me, as an English Student, to make a few remarks with reference to the subject? It appears that, in France, a non-qualified person dare not assume the title of Veterinary Surgeon without incurring a penalty. Now, in England, men can use the title without any fear of being prosecuted or molested in any way. Why is this? Is it because we do not need protection, or is it due to the apathy of the leading members of the profession, or want of energy on the part of the Council to suppress, and finally banish, the evil complained of?

I hope a different feeling is shown in England to gentlemen who earnestly try to abolish it, than in France; for the French Student tells us that veterinary surgeons who endeavour to abolish it are considered either incapable or idle in the profession, or—in plain words—that they are "muffs." Now, if qualified veterinary surgeons are backward in the profession, what are men who have had no education, proper tuition, or anything else worthy of it, but are merely grooms, or are men taught by a farrier, who perhaps is ignorant in the strictest sense of the word? A feeling prevails in our favoured country—and perhaps rightly—that the quack or other empiric, whether a groom or anything else, derives the high honour, credit for cleverness, etc., awarded to him, from the uselessness of some veterinary surgeons. It is a known fact that some men will learn quicker and become more proficient than others; and some, I fear, scarcely go to college with the intention of learning; or if so, to just become a member of the Royal College of Veterinary Surgeons, and leave the profession almost entirely, not caring what course it pursues—in fact, feeling altogether unconcerned about everything relating to it. If we, as students, do not try to become competent, and be able to give satisfaction to our employers, how can they put confidence in us, or trust us with valuable animals, when the quack, who will be most likely near at hand, can come and appear to, if not in reality, effect a cure where we have failed; or perhaps, not having studied the Commandments very carefully, will omit one of them, which plainly tells us, "Thou shalt not lie."

It is surprising to see so many eminent veterinary surgeons taking little or no interest in the matter, believing it to be utterly useless, and thinking that the employers will distinguish the qualified from the unqualified practitioner. But, unhappily, this is not the case, as they to their sorrow would see, were they situated in that particular locality where the parasite dwells.

There undoubtedly is want of energy in this matter; and perhaps it will not be remedied until all veterinary surgeons take an interest in the affair, and students go into the profession with some approved object in view, and determine to become esteemed and honourable members of the College.

Great praise is due to those gentlemen who endeavour in every possible way to give encouragement to us; numerous prizes are offered as a stimulus, and I hope they will be more and more appreciated, as they give us more energy and spirit with regard to the profession, and thus fully reward them for their high and honourable efforts.

There is an old motto which says, "Unity is strength," and this would be

very suitable to veterinary surgeons and students, who should unite, and not maintain that jealousy which I fear exists, but fully transmit to each other and the profession at large the views required for its complete success.

Trusting to be excused for taking up your valuable space,

I am, sir,

"AN ENGLISH VETERINARY STUDENT."

REMINISCENCE OF THE ANNUAL MEETING OF THE ROYAL COLLEGE OF VETERINARY SURGEONS, 1878.

To the Editor of the VETERINARY JOURNAL.

SIR,—On Monday, May 6th, we found ourselves assembled in our dingy old quarters in that quiet, seedy old Square ; and our respected and obliging secretary, with his placid, easy, and familiar smile, glad to greet us once again. For a moment or two I passed into deep reverie, thinking how well the *tout ensemble* was arranged ; when the melodious voice of our secretary called me to duty, and I had to pass some two hours in such a stale ancient room of small dimensions, in which I noticed that narrow little staircase descending to that nice little room below. But I am not, indeed should not be complaining ; for my time was most usefully employed (although I thought this duty might have been discharged earlier in the day, before the meeting opened). The atmosphere I inhaled, although of a stale musty flavour to my olfactories, was quite a luxury to the stifling fumy vapour of the Council Chamber, wherein there were congregated some eighty members of our craft, anxiously awaiting the annual report, and to disintegrate it as soon as possible.

Everything passed off in excellent order—a lively little episode on the ballot excepted ; and I must say I am pleased to know our medical associations are exerting themselves in so good a cause, thus bringing their good men to the front, and placing them in our Council. Moreover, I trust they will ever continue their good work, so that those counties not represented by an association will soon see the necessity of such an institution, and in due time bring their best men to the knowledge of the profession at large.

It must be a source of gratification to hear that something in form of a petition to Parliament is on the *tapis*, soliciting State aid to provide such a valuable and improving profession with a suitable habitation for its "sages"; wherein to discharge their most important duties to the State, the public, and the profession. It most certainly is no credit to our country, one of the finest agricultural nations in the whole world, that such a miserable, out-of-the-way dwelling-house should be the College of the Veterinary Surgeons of Great Britain and Ireland ; and it must be that some palpable negligence has existed with us, in bringing our condition to the light of day, that such has been permitted to continue so long. However, now that our excellent energetic President, with Mr. Fleming, have taken the subject in hand in real earnest, a remedy will speedily follow, and a radical cure be effected.

It was with feelings of great pleasure I observed our Mr. Geo. Williams a candidate for election on the Council, and I sincerely trust he will not despair, but push forward with increased vigour, and head the poll at our next election ; then bring his great influence to bear in working for our common good.

I am sure we all believe in fresh blood ; and there are many younger men than those at present in the Council, who have extraordinarily long old heads, who could and should take to harness, and relieve those who have done so well, and now require the rest and repose they so well deserve, yet

who would rather die in leather than see their good work take a retrograde course. May these remarks have the desired effect, and arouse those who should come to the front to their duty, or let them take the motto, *Ubi bene, ibi patria.*

Let us away to the banquet. Here we find some forty-four well-known members assembled, who have paid the twenty-three shillings fee for admission ; this includes wines. I thought at the time how strange it was we have not a member of Council, also a member of a Temperance Council. Why on earth should a total abstainer on principle be compelled to pay for that which he does not touch, and has, from pure and honest motives, determined to abstain from and discourage ? It may be worth the Dinner Committee's consideration on a future occasion to moot the desirability of making a fee for the dinner, and wine ticket separate. Moreover, at these *reunions*, it is numbers we want ; and many a good man is deterred because of the great expense, for there is not only the dinner, but rail and hotel expenses. That everything was well served and excellent, no one will deny.

The absence of two of the Principals of the schools in the north was noticed, as well as of many leading metropolitan practitioners. Such apathy is to be deeply regretted ; it is only on one day in each year we are expected to put in an appearance in general, and thus to show we have an interest in our *alma mater* other than that of pocket lining.

A few passing observations on topics in after-dinner speeches. The President, in well chosen words, expressed the important position our profession was now holding, and remarked on the new Army Warrant, also anent the Fellowship Examination, that the Council had decided that an educational test should be passed, under their supervision, and conducted by a delegate from the College of Preceptors—the subjects of examination to be arranged from time to time by the Council, demanding from the candidate the education of a country gentleman. This test is most important and is most potent, and all who have the well-being of the profession at heart, will join in expressions of decided approval ; but to ask a member of some years' standing to undergo an examination equal to a B.A. or graduate in arts, would, I opine, make the Fellowship degree to them an unattainable object. Therefore, a modified examination will test a man sufficiently to know if he be a gentleman ; for I take it that a gentleman may be defined as "a man of unimpeachable honour and gallantry, of dignified carriage, spotless reputation, a high mind, liberal views, and a *goodly education.*"

Therefore, if such be the standard, the Fellows may be trusted to keep up the good work entrusted to their charge. By-the-way, I cannot understand why a Fellowship candidate only should be subject to a preliminary examination on education, if he fail to produce the educational certificate. Why should not a candidate for membership also be subject to the same ordeal? I do not mean such a severe test, but certainly a test. I may be told the schools do this. I then ask by what authority ? I fail to see why the legal examining body should not sign the student's educational certificate themselves, and if they choose pass the higher examination for admission to Fellowship examination in due course.

I could not assent to Professor Simonds' remarks about pupils being left more to their own resources. It is to be feared they have had rather too much indulgence of this nature ; the young mind is mould d by the preceptor's demeanour and deportment ; the young watch their tutor in all his words, works, and actions, and unless highly educated and gifted, become copyists—indeed, I fear this is in general the case with ou students. Therefore, they cannot be too much under the tuition and com-

mand of a good disciplinarian. I am aware of the marked difference between the natural and artificial system of education, but must remember—

"Naturam expelles furca, tamen usque recurret,
Et mala perrumpet furtim fastidia victrix,"

or thus :—

"You may crush, or endeavour to crush, all that is natural, but nature will be nature still, and by slow but sure degrees will eventually and victoriously break through all conventional absurdities."

Much and great credit is due to our professors for the wonderful results of their labour ; in no other scientific and liberal profession could such success be achieved—I allude to the class of students who frequently enter on their studies, and the labour needed to work them up to pass the final examination: men in middle, or past middle life, who have been in many trades and vocations, and even in no kind of occupation whatever, may have passed the bloom of youth in the ranks of our army ; then by chance drifted into our profession.

The army regulation limits the age of veterinary surgeons entering to twenty-six years, and it is to be hoped our schools will make a similar limit. Surely the choice of such a noble calling should be made at that age when instruction of the true and valuable kind can only be received. However much the school authorities may disapprove of articled pupilage, I am clearly certain it is the only way to make "practitioners," in the strict meaning of the term. The school tuition must be toned with that practical scientific manipulation only to be obtained in the broad field of practice and observation, under an experienced surgeon's guidance. Others may object, but I am firm ; I have had the newly-fledged *rara avis* "on the *see* your practice system"—hence the data ; and I do think it will be advisable to attend to this subject ere we go in for the Penal Clause, for many experienced, well-informed agriculturists will speak on the subject.

Lastly, it is to be hoped that all differences existing between the Royal College of Veterinary Surgeons and the Highland and Agricultural Society will be adjusted under the courteous influence of our President ; so that we all may become one flock under one shepherd, and extend the hand to each other in brotherly sympathy and union. Then the time will arrive when the Penal Clause will not prove such a hard nut to crack after all.

Trusting our next meeting will find us nearer the consummation of those things imperative to our welfare,

I am, sir, yours obediently,

"ARTEMUS SECUNDUS."

P.S.—The legality of a member of Council of a Body Corporate being also a paid officer of the institution, has often struck me ; at all events, if legal, is it just and independent? Moreover, the duties of a secretary are so arduous—— I was about to say more, but refrain.

CONTAGIOUS PLEURO-PNEUMONIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—In reply to a letter from Mr. Beddard in your journal of this month, relative to some remarks I made at the meeting of the Lancashire Veterinary Medical Association, I beg to state that the said remarks were based on information I received soon after the slaughter of the cow in question, and regarding which, until Mr. Beddard's letter appeared in your journal, I had not been undeceived.

I am glad Mr. Beddard has given us the true facts of the case, and pleased to hear that he was not held responsible for his error.

Respecting, however, the remarks complained of, I may, in justice to myself, observe that I am made to say exactly the reverse of what I did, in stating that I had erred and should have to pay, or that my opinion was confirmed by the third veterinary surgeon. The boot was just on the opposite leg : Mr. Beddard being the inspector, *he* had to declare the nature of the disease ; I only acted as veterinary adviser to the Corporation Farm Committee. Further, you will recollect I complained to you personally that my speech had been mis-reported, and was calculated to convey a wrong impression. Had the two words in brackets ("the speaker") been omitted, that sentence and the following one would have read correctly.

Mr. Beddard says rightly, that after seeing the lungs I still maintained there were indications of the disease. I did so, and I am still of opinion that it was a case of Pleuro-pneumonia in its congestive stage. The portion of wire had held a harmless position for a long period. No inflammatory action of recent date was apparent anywhere around it ; and I do not for a moment believe it had anything whatever to do with the increased respiratory murmur and the other lung symptoms manifested. Regarding the nature of the case, however, Mr. Beddard and Mr. Pritchard thought differently. Nevertheless, we each enjoy our own opinion, with full liberty to express the same.

Yours obediently,

Wolverhampton, *May 13th.* J. WOODROFFE HILL, F.R.C.V.S.

CONTAGIOUS PLEURO-PNEUMONIA, AND CHRONIC TUBERCULOSIS.

To the Editor of the VETERINARY JOURNAL.

SIR,—Referring to the above diseases in cattle, I know there is a very great difference in the *post-mortem* appearances of the two, when the one is not complicated with the other ; but I would like to know what are the appearances (*post-mortem*) of Zymotic Pleuro-pneumonia in a case of Chronic Tuberculosis. Well, I have no doubt but the answer will be, that the autopsy of a case of Contagious Pleuro-pneumonia will be the same in all cases, only different in degree.

Suppose a pair of lungs thoroughly diseased with Chronic Tubercle ; is it possible for them to resist the specific action of the Contagious Pleuro-pneumonia blood poison? I believe not ; and so far as my experience goes, it is a very difficult matter to say that lungs affected with Chronic Tuberculosis are altogether free from Contagious Pleuro-pneumonia. I have seen lungs of old dairy cows so thoroughly diseased with Tuberculosis, as to completely alter the appearance of their whole structure. I have also seen cows affected with Tuberculosis for at least two years, and Contagious Pleuro-pneumonia break out amongst the stock, and the cows affected with Chronic Tuberculosis succumb to Zymotic Pleuro-pneumonia ; and on a *post-mortem* examination, if I had not seen the animals when alive, I would have been inclined to say that it was only Tuberculosis after all, and nothing more. I consider it a right provision that is at present in force, for inspectors to see all animals affected with Contagious Pleuro-pneumonia *alive* before they can put the act of 1869 into operation ; it gives them far greater facilities for making out the exact nature of the disease. If the owners of animals had the privilege of slaughtering before reporting to the inspector, there would

be no end of discussion as to what was, or what was not the disease. I only wish that all the able veterinarians had been placed in the same position (those connected with the recent trial). I am inclined to think there might have been a possibility of their being more unanimous. I have no doubt but that all the Professors who had anything to do with the case in question are equally capable of diagnosing between the two diseases in the living animal, and as competent in examining the lungs of the dead ; and yet they came to different conclusions. It looks to me somewhat strange ; and yet there have been far greater mistakes committed by as eminent men. The majority of veterinarians (in ordinary cases of either disease) are expert enough at detecting disease of the lungs of cattle, and also at inspecting them after death ; but I think none have reached that stage of perfection in diagnosing the condition of the living, or inspecting the carcase of the dead, but that they may fall into error. If the specific blood-poison of Zymotic Pleuro-pneumonia (whatever it is) could be detected and analysed as some mineral substances are, or if by the aid of the microscope the so-called poison could be isolated and examined, then I would say that men of science really had substantial evidence in asserting that this lung was clear, and that one was impregnated with a specific blood-poison. It is fully admitted that a virus can pervade the system of an animal for three months, and nothing can be detected for some time but an increase of temperature. Have the animal at this stage destroyed, and examine the lungs ; nothing will be seen abnormal. Take an animal that is known to have the poison in the blood, and has a temperature of 103°, with the hair standing erect, the appetite not so keen, and perhaps the milk decreasing in quantity,– the skin at the same time becoming a little hard and unpliant over the ribs. This animal is suspicious ; in fact, we know that she is diseased ; but as we have just found her at this stage, will the *post-mortem* corroborate our diagnosis? I am very doubtful, if we call in a stranger in these circumstances, and point out the lungs, whether he will not say there is no appearance of Contagious Pleuro-pneumonia.

So my opinion is that veterinarians would all do well to be exceedingly cautious in giving their opinion ; for in many such cases it can only amount to an opinion. It is true, veterinary surgeons will not often be placed in such a position, as in most cases a few days will be allowed to pass before one is compelled to give a decided verdict. But it has happened, and will happen again, that one is put off his guard, and landed in an awkward position by obstreperous clients ; and then round comes the old adage "When doctors differ who shall decide?" which is used by the public whenever an opportunity occurs, and is always more or less detrimental to the standing of the profession. But we are ourselves for the greater part to blame ; we are all getting so impregnated with knowledge that one professional gentleman thinks it clever to outstrip his brother ; and this is all the more evident in a court of law. I do not at present remember a case of veterinary jurisprudence in which a number of veterinary surgeons were examined, where one party did not swear one way and another party the very opposite. Well, is this too much knowledge for the one, and too little for the other, or do men not swear to the standard of light that is in them? For my part, I will not attempt to decide ; but the fact has been, is, and I have no doubt will be again, about matters concerning which one would think there could not be two ways. However, in returning more to the point, I would again ask, what has a veterinary inspector to rely upon in diagnosing the two diseases in question? In both diseases the lungs are altered in structure ; yet they are two distinct diseases, and in most cases not at all difficult to make out. At first sight, both are suspicious in general appearance. I have no doubt many would say that auscultation will at once decide ; but by auscultating and

percussing, I have in many cases been unable to convince myself as to the existence of one or other disease : there are so many sounds common to diseases ; the cough and respiration, no doubt, are different ; the heart's action is also at times different, and many other minor symptoms are not alike in both diseases. But, after all, in examining a cow standing in a shed where Contagious Pleuro-pneumonia has been—say some months before—I could not satisfy myself without the use of the thermometer ; for I have always found that in cases of Contagious Pleuro-pneumonia, the temperature is increased generally to about 105°, and in some cases as high as 107°. In no case of Chronic Tuberculosis, pure and simple, have I found it above 102°. It might be different in town dairies ; but as to that I have had no practical experience.

Let veterinary inspectors be ever so expert in diagnosing disease in the lungs of cattle, my opinion is that it should be made compulsory for them to use the thermometer in all suspicious or suspected cases ; for I am convinced by my own observations, that with the use of the instrument disease can be detected earlier and with more certainty. Without its use we lose one very important indication ; when we find the temperature of an animal so high as 104° or 105°, combined with other symptoms—such as rigors, hair erect, loss of appetite, with an occasional hard dry cough, and in milk cows the milk secretion diminished, and pressure on the spine or over the intercostal spaces causing the animal to grunt or moan, while the nasal cartilages are working spasmodically at each inspiration ; and then combining these with auscultatory sounds—such as friction sounds, crepitations, ronchus, sibilus, with perhaps increased respiratory murmur louder than natural in one lung, and less distinct in the other,—I think any one finding these symptoms present could not be censured for condemning the animal as affected with Contagious Pleuro-pneumonia. And yet it is questionable if all these symptoms could not be observed in a case of Sporadic Pleuro-pneumonia.

I consider that no hard-and-fast line should be drawn with veterinary inspectors, if the lungs of an animal are so diseased as to alter their structure, or if an animal is destroyed in the first stage of Contagious Pleuro-pneumonia, when there is no characteristic lesion to indicate that the animal had been affected with contagious lung disease.

Hoping I have not trangressed too far upon your readers' patience, and that you will find a place for these remarks in your next issue.

Believe me to be,

Yours faithfully,

"PNEUMONIA."

TYPHOID FEVER AT EAGLEY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the *Veterinary Journal* for May, Mr. Robinson, Medical Officer of Health for Turton, and his son, in a letter on this subject, are surprised "I should use as authoritative the *ex-parte* reports of any newspaper I may take up." The brief allusion to the matter in my address last February, was based principally upon knowledge I gained from a paper read before our Association in 1876 by those interested in the case, and not any *ex-parte* newspaper report ; and instead of ignoring the medical report to the Local Board of Health, I beg to inform them that I have a *verbatim* copy both of that and the certificates given by the veterinary surgeons, which after carefully reading in February last, and again now, clearly prove to be true, to my mind, what I stated in my address. But no doubt those more closely

connected with the facts, and who are able to judge from personal knowledge, will have something to say in vindication of their own honour.

The above-named gentlemen also accuse me of casting "disparaging remarks on the medical profession in general, and by inference on them in particular. I should be exceedingly sorry to say anything to wound the feelings of the medical profession, but I feel sure it is not so foolishly sensitive as to take umbrage at my saying "they possess but little knowledge of the diseases of animals."

Messrs. Robinson are entire strangers to me, and I have not the slightest personal feeling in the matter; but I must confess that I still think they did not certainly soar above their fellows in the knowledge they displayed of the maladies of animals, notwithstanding the assertion in their letter that Mr. Robinson had been accustomed to cows all his life.

Apoligising for troubling you with matters that I fear will not prove very beneficial to any—either reader or writer—I will conclude with the wish expressed last February, though not reported: "That the veterinary profession will always acknowledge the debt it owes to the medical world for its fostering care of a younger brother, and that common aims and ambitions may bind and cement us with a firmness that shall defy the powers of any individual to sever."

I beg to remain, yours, etc.,

T. Hopkin, F.R.C.V.S.

Manchester, *May 17th*, 1878.

[We have received letters from T. Greaves, T. Taylor, and S. Locke, as well as testimony in proof of the statements made by them in reference to this matter, but pressure on our space compels us to hold them over until next month.—Ed. *V. J.*]

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND AND ITS VETERINARY CERTIFICATES.

To the Editor of the Veterinary Journal.

Sir,—I am perfectly certain that every member of the veterinary profession will agree with the opinion expressed by Mr. Lambert, 17th Lancers, in his letter which appears in the May issue of the *Veterinary Journal*, to the effect that the Highland and Agricultural Society, by continuing to grant certificates in veterinary medicine and surgery, is not only acting in opposition to the general feeling and interests of the entire body of the profession, but is doing its utmost to foster spurious titles. Among the graduates of the Scotch schools who hold the certificate, and are members of the Royal College of Veterinary Surgeons, the opinion is universal and strong that this Agricultural Society is doing a wrong in granting this certificate, and claiming for its possessor the title of Veterinary Surgeon. Nowhere is a justification for this course to be found, and the assumption or conferring of the title is distinctly illegal. That it is not recognised as legal or efficient, is evidenced frequently in courts of law, in the Contagious Diseases (Animals) Act now before Parliament, as well as in the new Army Warrant just issued, in which none but those who have received the diploma of the Royal College of Veterinary Surgeons are recognised as duly qualified, and will be accepted. Surely if the Society is not altogether blinded by prejudice, or misled by one or two unscrupulous individuals, it must see that it is not only acting wrongly and prejudicially towards the entire body of the veterinary profession, but is bring-

ing disgrace upon itself by continuing to act as it does in this respect. It is no more qualified, and has no more right to interfere with veterinary teaching or qualifications, than any other Agricultural Society in the three kingdoms. That some of its supporters feel this, is apparent from the way in which they seek to influence opinion in Scotland by persistently attempting to mislead the public in alluding to the Royal College of Veterinary Surgeons as the Royal Veterinary College—thus making the question one of rival schools, instead of (as it really is) the entire body of the veterinary profession and its legal rights, and the Highland and Agricultural Society and its spurious veterinary title. We find not only the *North British Agriculturist* adopting this discreditable *ruse*, but also men connected with the Highland Society.

The fact is, sir, that these spurious claims to the title of veterinary surgeon are every year becoming less sought for, as the reports of the Society's examination for this Session amply show; and perhaps no students would apply for them at all, were there not certain influences in operation which one would scarcely expect. The few students who go up for the certificate are from two rival schools in Edinburgh, presided over by members of the Royal College who should have every reason to act loyally to their profession, and discountenance whatever may tend to its injury. But it is to be feared that the miserable rivalry which two schools of this description in the same city engenders, and the consequent competition for the favour and patronage of the Society, are stronger than the loyalty and devotion which we often hear of in that quarter. The profession owes a deep debt of gratitude to Professor McCall, of the Glasgow College, who stands faithfully by the body corporate, and does not allow his students to lend their countenance to a system which now does nothing but harm. And what shall we say of the two members of the profession who yearly attend the examinations for the certificates, and exert themselves to perpetuate what is so hurtful and obnoxious to their colleagues! Surely, if they have any professional *esprit*, they must feel that they are playing a most reprehensible part, and are pursuing a line of conduct which will bring them no satisfaction or credit in the future.

The continuance of the certificate system, and the assumption of spurious titles, depends, in my opinion, upon four men: the Principals of the rival Schools in Edinburgh, and the two Manchester members of the profession who act as examiners for these certificates. Let these men act loyally towards their brethren and to their profession, and the wrong that now exists would be at once abolished. Then we could soon rid ourselves of impostors, and benefit the public, while forwarding our own interests as a united body.

The Highland Society can largely assist in promoting veterinary science, and we trust that, when it suppresses its certificate, it will continue so to do. At present it is assuming a function for which it is not competent, which is entirely unnecessary and illegal, and which is continued in opposition to the wishes and interests of a profession that is every year becoming more influential and competent to manage its own affairs, and resent hurtful interference.

With regard to holders of the Society's certificates only, I have not a word to say against their abilities. For many years I held nothing but the certificate, I am sorry to confess; but I soon learned that it did not give a *legal claim* to the title of "Veterinary Surgeon." As I did not care to sail under false colours, and was, moreover, convinced that no good could come of sanctioning the issue of certificates, or having two bodies granting licences to practise veterinary medicine, when one was quite sufficient, I put the Society's document in the fire, became legally qualified, and have had every reason to congratulate myself on having done so. The Royal College of Veterinary

Surgeons is the only portal through which members of the profession should and must pass. It is *the* profession itself, and all improvement, all progress, can only be effected by it. Every member has a voice in its management and control over its actions, and it recognises no one school more than another; it exists for the profession, as well as for all the schools.

Apologising for writing at such length, which nothing but the importance of the subject could warrant,

I remain, yours obediently,

A "VETERINARY SURGEON" AND AGRICULTURIST.

ERRATUM.

In the report of the Examinations of the Students from the Royal Veterinary College in April last, the gentleman who passed his Examination with VERY GREAT CREDIT was Mr. John Richard Carless, of Stoke-upon-Trent, and not Mr. W. A. Hancock, as reported in the last issue of the *Veterinary Journal.*

TO CONTRIBUTORS.

WE cannot undertake to publish, as ORIGINAL COMMUNICATIONS, papers which are intended to appear simultaneously in other journals. The reason for this course is obvious, and in adopting it we are only conforming to the rule observed in all high-class publications.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. W. Hill, Wolverhampton; G. Evans, Royal Artillery, Sealkote; W. Osler, M.D., Montreal; "Pneumonia"; W. A. Taylor, Manchester; J. Ritchie, Kincaldrum, Forfar; "French Veterinary Student"; A. Spreull, Dundee; A. L. Gibson, Birmingham; "Veterinary Surgeon and Agriculturist"; Professor Walley, Edinburgh; "An English Veterinary Student"; W. F. Barrett, Hereford; "Artemus Secundus"; W. H. Coates, London; T. Hopkin, Manchester; Professor Williams, Edinburgh; Professor M'Call, Glasgow.

BOOKS: Annual Report of the Veterinary Department of the Privy Council; *Carsten Harms*, Das Milchfieber des Rindes; Announcement of the Montreal Veterinary College; Referat betreffend die Verbreitung der Ansteckenden Thierkrankheiten im IV. Quartal 1877; *E. Klein, M.D.*, Experimental Contribution to the Etiology of Infectious Diseases; Cassell's Natural History; *Lanzillotti-Buonsanti e G. Pini*, Dizionario dei Termini, etc., delle Scienze Mediche e Veterinarie.

JOURNALS: *Edinburgh Medical Journal; American Veterinary Review; Animal World; North British Agriculturist; Mark Lane Express; Farmer; Agricultural Gazette; Recueil de Méd. Vétérinaire; Annales de Méd. Vétérinaire; Revue Vétérinaire; Live Stock Journal; Archivio di Medicina Veterinaria; Wochenschrift für Thierheilkunde und Viehzucht; Medical Press and Circular; National Live Stock Journal; Lancet; Medical Times and Gazette; Archives Vétérinaires; Journal of National Agricultural Society of Victoria; Der Thierarzt.*

NEWSPAPERS: *New York Spirit of the Times* (five copies); *Toronto Leader; Turf, Field, and Farm* (two copies); *Scotsman; Edinburgh Courant; Ottawa Daily Citizen; Teesdale Mercury; Glasgow Courier.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

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